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EDITOR
Anita Trnavčević

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The Editor's Corner

More than a year ago the idea about a new journal was born. At the time colleagues often stopped me curiously asking: 'How is it going?' For this long year the only answer was: 'It's moving.' With this first volume and the first number a step in this 'moving' process can be identified – something has been moved and we keep moving on. Let me, then, start by thanking the authors of the manuscripts we have received, the Editorial Board Members and reviewers for their willingness to join us in this 'moving' journey as well as for the work they have done in order to make this journal 'happen'.

For the readers as well as for those who might consider submitting their article to *Managing Global Transitions: International Research Journal*, we would like to point out the distinctive features of the journal – its focus on transitions and the aspiration to provide diverse perspectives on the processes of change and evolution in a broad range of academic disciplines and fields, such as management and administration, economics and business, education, legal issues and leadership.

The Journal, therefore, seeks to embrace three processes – management (administration, leadership) concepts and processes, globalisation and transitions, which are not all specifically tied to one area or academic discipline. 'Transition' was one of the challenging ideas as we, in our part of the world, often associate it with the economic concept of a 'country in transition'. Yet, what or who is not in transition if we look at current world events? What is stable and what has been changing? As we try to understand, anticipate and manage these transitions, even more – every now and then we even have the feeling we control them. However, there are many critical issues that need to be deconstructed and surfaced – research is one of the means to achieve this aim.

One might argue that by the breadth we will lose the depth. Our intentions go beyond the dichotomy of 'depth' and 'breadth' by arguing that the articles and you, researchers and authors, will bring the depth of your topic, research into our journal, yet the journal as a whole will provide the reader with a breadth of areas, fields and disciplines. We believe that the complexity of processes and interrelations, interconnectedness and even more, the perplexity of 'pulses for change', occur in complex environments and have implications for many, traditionally isolated and well-bounded academic disciplines and 'real' life. For these reasons, the

Journal consists of different sections that might and will vary from issue to issue. This first number embraces articles related to 'general' management and education while the next issue will bring to the surface economic views and current educational topics. Such a variety has richness in bringing diversity and complexity of relations upfront, but it also might have some weaknesses for those looking for a specific topic.

The first number is almost a display of the variety and diversity of topics, areas and methodologies. It starts with Noel Gough's 'experiment', with his 'travelling' through speculative fictions for understanding the global change environment, an article that invites philosophical discussions. The author invites readers to join the discussion and we would be pleased to publish your discussions through the next three numbers. The following articles are grouped into management, and education. Catana was a Fulbright scholar in Slovenia and she provides the findings of multiple case studies related to management and organisational theories that she conducted during her visit to Slovenia. Oldroyd discusses contrasting directions in educational leadership bringing to light the 'results or learning' oriented dichotomy. Dibbon focuses on the processes of creating a culture of innovation in Canadian schools while Haugen, Behling, Wood and Douglas discuss a project done on distance learning in the United States Army. Thank you for joining us and sharing your work.

We also kindly invite you – the researcher and scholar and the reflective practitioner – to join our endeavour by sending your article to the Journal. It is an intriguing and challenging journey – a never ending story of research and discussion. We have started it and we can keep it going only with your contributions. Let's keep moving, then.

Anita Trnavčević
Editor

Speculative Fictions for Understanding Global Change Environments: Two Thought Experiments

Noel Gough

The purpose of a thought experiment, as the term was used by quantum and relativity physicists in the early part of the twentieth century, was not prediction (as is the goal of classical experimental science), but more defensible representations of present 'realities'. Speculative fictions, from Mary Shelley's *Frankenstein* to the *Star Wars* cinema saga, can be read as sociotechnical thought experiments that produce alternative representations of present circumstances and uncertainties, and anticipate and critique possible futures. In this essay I demonstrate how two examples of popular speculative fictions, Frank Herbert's *Dune* (1965) and Ursula Le Guin's *The Telling* (2000), function as thought experiments that problematise global transitions in their respective eras. I argue that critical readings of such stories can help us to anticipate, critique, and respond constructively to social and cultural changes and change environments within nation-states that constitute, and are constituted by, global change processes and their effects.

Introduction

My invitation to join the editorial board of this journal (and to contribute an article to its first volume) arrived just a few days after I had finished reading *The Telling*, a relatively new science fiction novel by Ursula Le Guin (2000). *The Telling* imagines some of the ways in which humans might respond to the forced homogenisation of culture on a planetary scale and I was immediately struck by its pertinence to my educational research interests in the social and cultural effects and implications of globalisation. A few days later another request arrived, this time from a UK colleague, Justin Dillon, who had been invited to chair a discussion at the first Cheltenham (England) Festival of Science entitled 'Happy Birthday *Silent Spring*' to mark the 40th anniversary of the publication of Rachel Carson's (1962) best-known book.¹ In preparing for this session, Dillon asked a number of colleagues in environmental education research to share their views of *Silent Spring*.

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In a subsequent article, Dillon (2002) reveals that all except one of his colleagues viewed Carson's book very positively – in fact, the only negative criticism he received was my own brief response which concluded that '*Silent Spring* is politically incoherent' (p. 16). I must say here that I do not entirely disagree with my colleagues. I too admire Carson for her courageous and passionate exposé of the deleterious environmental effects of chemical pesticides, and acknowledge *Silent Spring*'s significance as a trailblazing text in environmental consciousness raising. However, in recent years I have come to suspect that Carson's political responses to environmental crisis were at best naive and at worst irresponsible. More importantly, for the purposes of this essay, my suspicions were not aroused by a direct re-examination of Carson's text. Rather, I returned to *Silent Spring* via its intertextual relationships with Frank Herbert's (1965) cult science fiction novel, *Dune*.²

Dune, like *The Telling*, can be read as a thought experiment. Both novels produce alternative representations of present circumstances and uncertainties, and anticipate and critique possible futures. Each novel dramatises social transformation on a global scale. In *Dune*'s case, the driver of transformation is ecological crisis, whereas in *The Telling* it is the lure of an intergalactic (rather than merely global) 'common market'. In this sense, each fiction speaks to a familiar world and demonstrates the defensibility of Donna Haraway's (1991) assertion that 'the boundary between science fiction and social reality is an optical illusion' (p. 149). I argue that critical and deconstructive readings of these novels might help us to produce anticipatory critiques of global transitions and transformations.

Science Fiction and Social Reality: *Dune* and *Silent Spring*

I first read *Dune* in 1968, the year in which I began teaching high school biology. Over the next few years, I recall recommending it to students and discussing aspects of the novel that were most obviously relevant to their course. When I moved into teacher education in 1972 I listed it for wider reading in the biology and environmental education teaching methods courses I taught for several years. I found little of interest (to me or my students) in *Dune*'s several sequels, and other examples of SF – an acronym that now refers to much more than 'science fiction'³ – became more relevant to my work in teacher education and, eventually, to my research in curriculum studies (see, for example, Gough 1991; 1993; 1995). In the course of this more recent research, I became increasingly aware

of the growing academic interest in interdisciplinary studies of literature and science and the relevance of these studies for my own work.

In 1996 the US Society for Literature and Science circulated a call for expressions of interest in contributing to an international sourcebook on the contemporary literature of nature, a 250,000-word volume of more than sixty chapters that was intended to cover the major geographic regions of the world as well as national literatures within those regions. The editor welcomed suggestions for other types of contributions and I offered to write a chapter on science fiction as environmental literature. I did this for two reasons. First, I was personally challenged by the prospect of writing in an academic discipline (literary criticism) in which I had no track record. Second, I was familiar enough with the literature of what was beginning to be called *ecocriticism* that emerged, especially in North America, during the mid-1980s⁴ to realise that SF might not be regarded as a form of nature writing by many of its practitioners and critics. For example, Thomas Lyon's (1996) *Taxonomy of Nature Writing* includes the following five categories: field guides and professional papers; natural history essays; 'rambles'; essays on experiences in nature (including three subcategories: 'solitude and back-country living', 'travel and adventure', and 'farm life'); and 'man's [sic] role in nature' (p. 278). Lyon makes no references to fiction at all, let alone to genres such as SF, and I began to suspect that such popular texts might constitute blind spots in scholarly studies of environmental literature. I thus saw my chapter as a deliberate intervention in the 'greening' of literary studies that complemented my long-standing interests in exploring and expanding the educative potential of SF in disciplines in which it is still relatively undervalued.

When I revisited *Dune* in the course of writing my chapter for the sourcebook (Gough 1998), I was less interested in its relevance to biology and science education than with appraising it from an 'ecocritical' standpoint. As a point of departure for my essay, I characterised my own position by reference to William Howarth's (1996) description of an *eco-critic* as 'a person who judges the merits and faults of writings that depict the effects of culture upon nature, with a view toward celebrating nature, berating its despoilers, and reversing their harm through political action' (p. 69). Although I intended to focus principally on the distinctive features of SF as environmental literature, I also thought it would be prudent to draw attention to what the genre shares with more conventional forms of nature writing (Gough 1998, 409):

For example, homages to solitude and wilderness, accounts of rambles in remote areas, and other reflections on experience in nature can be found in specific works of SF, such as Ursula Le Guin's (1986) meditation on scrub oaks in *Always Coming Home* (pp. 239–41) – an exemplary exercise in heightened attentiveness to nature. Furthermore, SF usually responds to the same cultural imperatives that motivate other nature writers, as Brian Aldiss and David Wingrove (1986) demonstrate by devoting a whole chapter of their comprehensive history of SF to 'the flight from urban culture' that characterised many of the genre's most typical works between the 1890s and the 1920s. Similarly, Frank Herbert's novel (1965), *Dune*, which he dedicated to 'dry-land ecologists, wherever they may be', can be seen to reproduce what R. J. Ellis (1990) calls the 'discourse of apocalyptic ecologism' (p. 104) generated in North America during the 1960s by books like Rachel Carson's (1962) *Silent Spring*.

I also pointed out that, as a response to an environmental crisis (in this case, massive desertification on the planet Dune), Herbert's story displays some of SF's least admirable stereotypes, such as the assumption that virtually all problems are amenable to technical solutions (although *Dune* emphasises appropriate and environmentally sensitive technology rather than high-tech gadgetry for its own sake). Less defensibly, given the novel's rhetoric of holistic approaches to environmental problems, Herbert invests much of the political power to intervene in *Dune*'s ecology in an individual, Paul Maud'Dib, an extraordinary and increasingly autocratic frontier hero (another SF stereotype). This hero is (of course) male, and *Dune* explicitly reproduces many of the patriarchal discourses that are so disabling in attempts to resolve social and environmental problems through democratic processes.

According to Ellis (1990), Herbert hoped that *Dune* would be 'an environmental awareness handbook'⁵ and admitted that the title was chosen 'with the deliberate intent that it echo the sound of "doom"' (p. 120). Ellis (1990) argues that the apocalyptic representation of ecological balance in *Dune* is 'constrained from coherence by its narrative reproduction of the discursive formulations of the science of ecology in mid-century America ... and these discourses' instabilities' (p. 106). Ellis does not suggest that *Silent Spring*'s similarly apocalyptic representation of the impact of

chemical pesticides upon North America's ecosystems was a direct influence on *Dune*⁶ but, rather, that both books are symptomatic, in their discursive formations, of key features of scientific representations of the USA's environmental status during the late 1950s and early 1960s. Dillon's request to comment on *Silent Spring* reminded me that it shared a degree of political naivety with *Dune* – that both books were (to paraphrase Ellis) similarly constrained from coherence by their narrative reproduction of the discursive formulations of democratic governance, civil society and citizenship in mid-twentieth century America and these discourses' instabilities. However, I am now persuaded that, for all its limitations, *Dune*'s narrative location within the SF genre allows Herbert to deploy a set of generic expectations that enable him to explore the political implications of ecological crisis *more* creatively and critically than Carson does.

Carson argues that ecological disaster is imminent but fails to suggest any possibilities for political action or power redistribution that might avert her doomsday scenario. She indicts governments and chemical companies for their actions and inactions but her engagement with political power arrangements degenerates into anguished and repetitious hand wringing about the effects of insecticides (p. 121):

Who has made the decision that sets in motion these chains of poisonings, this ever-widening wave of death that spreads out, like ripples when a pebble is dropped into a still pond? Who has placed in one pan of the scales the leaves that might have been eaten by the beetles and in the other the pitiful heaps of many-hued feathers, the lifeless remains of the birds that fell before the unselective bludgeon of insecticidal poisons? Who has decided – who has the *right* to decide – for the countless legions of people who were not consulted that the supreme value is a world without insects, even though it be also a sterile world ungraced by the curving wing of a bird in flight? The decision is that of the authoritarian temporarily entrusted with power; he [sic] has made it during a moment of inattention by millions to whom beauty and the ordered world of nature still have a meaning that is deep and imperative.

This passage simplistically equates control with tyranny and individualised authoritarianism – hardly an enabling analysis of political power in the US of the 1960s. Carson's uncertainty about political agency is con-

sistent with Noam Chomsky's (1997) argument that throughout the 20th century US media figures and other elites have promulgated 'spectator democracy' rather than participatory democracy. Wayne Ross (2000) argues that social studies education in the US continues to promote spectator democracy by reproducing proceduralist conceptions of democracy in which 'exercising your right to vote' is the primary manifestation of good citizenship: 'Democracy based on proceduralism leaves little room for individuals or groups to exercise direct political action; this is a function left to a specialised class of people such as elected representatives and experts who advise them' (p. 241).

Compared to *Silent Spring*, the narrative of *Dune* presents a relatively clear and coherent analysis of its political themes. Although Herbert focuses his exploration of the political choices facing the inhabitants of Dune on the dilemmas confronting an individual, he actively interrogates the relationships of power, control, responsibility and foresight through Paul Maud'Dib's constant agonising about the ways he is being elevated to the status of Messiah and his fears that by assuming control of Dune's future he will become a tyrant. In *Dune*'s sequels, this ecopolitical theme is subordinated to portrayals of cosmic conflict – banal space operas comparable to the more recently produced episodes in the *Star Wars* cinema saga. But *Dune* itself is rescued from such banality by its persistent engagement with the politics of *responding* to global ecological crisis. Moreover, this engagement is made accessible to readers by the relatively obvious implicit parallels that can be drawn between the history of Dune and the history of the US.

In other words, returning to Howarth's (1996) characterisation of an ecocritic, I argue that Carson's *Silent Spring* is ecocritical to the extent that it depicts the effects of culture upon nature, celebrates nature, and berates its despoilers, but that it largely ignores or oversimplifies the possibilities of 'reversing their harm through political action' (p. 69). But this is precisely what *Dune* offers: a dramatic rehearsal of possible human responses to ecological crises and catastrophes.

I do not want to overstate this particular comparison. There is no shortage of ecocatastrophic literature from the era of *Silent Spring* and *Dune*. I personally believe that J. G. Ballard's stories of the earth in ecological ruin, such as *The Drowned World* (1963) and *The Drought* (1965) surpass *Dune* in literary and ecocritical merit, although neither enjoyed the latter's mass popularity. I could also have made several more direct comparisons between books on similar themes, such as Paul Ehrlich's

(1968) *The Population Bomb* and John Brunner's (1968) *Stand on Zanzibar*. My purpose is to draw attention to the different qualities of texts drawn from different genres that deal with similar 'big issues' in particular times and places and to caution against investing all or most of our interpretive efforts in those that come with arbitrary labels such as 'non-fiction', 'documentary' or 'educational' rather than those which are designated as 'fiction' or 'entertainment'.

Katherine Hayles (1990, xi) makes a similar point in her archaeology of textual representations of chaos and complexity theories in literature and science:

... different disciplines, sufficiently distant from one another so that direct influence seems unlikely, ... nevertheless focus on similar kinds of problems [at] about the same time and base their formulations on isomorphic assumptions. ... Different disciplines are drawn to similar problems because the concerns underlying them are highly charged within a prevailing cultural context. Moreover, different disciplines base the theories they construct on similar presuppositions because these are the assumptions that guide the constitution of knowledge in a given episteme. This position implies, of course, that scientific theories and models are culturally conditioned, partaking of and rooted in assumptions that can be found at multiple sites throughout the culture.

As a curriculum scholar, I am interested in how the different qualities of texts from different disciplines might best be deployed by teachers and learners. And I would argue that, although every text must be judged on its own merits, SF stories often are more hospitable to socially critical educational purposes than 'non-fiction' texts because they are open-ended thought experiments rather than assemblages of evidence, arguments, and foreclosed conclusions. Books such as *Silent Spring* and *The Population Bomb* are a mixture of rhetorical forms but typically include: sermons, moral exhortations and reprimands, didactic instructions, indictments and arraignments, cases for the prosecution, 'scientific evidence' and conclusions, conclusions, conclusions, all characterised by *foreclosure*, by the author's assumption and assertion of a rhetorical dead-end (guilty, QED).

Much SF is not foreclosed. In *Frankenstein* Mary Shelley (1992) asks: what if a young doctor creates a human being in his laboratory...? In

Dune, Frank Herbert asks: what if massive desertification threatens a planet very like Earth...? As Le Guin (1979, 156; emphasis in original) writes:

The purpose of a thought-experiment, as the term was used by Schrödinger and other physicists, is not to predict the future – indeed Schrödinger’s most famous thought-experiment goes to show that the ‘future,’ on the quantum level, *cannot* be predicted – but to describe reality, the present world.

Science fiction is not predictive; it is descriptive.

Instrumentalist approaches to education tend to reflect and naturalise models of social interaction in which ‘rational’ behaviour is assumed to follow from human actors pursuing their more or less enlightened self-interests. These approaches readily accommodate ‘instructive’ texts like *Silent Spring* because they privilege ‘scientific’ understandings that are assumed to be instrumental in enabling humans to pursue such ‘rational’ choices. Yet the extent to which knowledges are authorised, and the manner in which they are (or are not) mobilised in the form of dispositions to act (or not), might be very sensitive to different cultural traditions, values and identities. Thus, for example, with respect to environmental education, I agree with Brian Wynne’s (1994) arguments for caution in predicting the effects of providing people with scientific knowledge of global environmental changes, such as those associated with greenhouse gas emissions (p. 186):

The assumption is that increasing public awareness of global warming scientific scenarios will increase their readiness to make sacrifices to achieve remedial goals. Yet an equally plausible suggestion is that the more that people are convinced that global warming poses a global threat, the more paralysed they may become as the scenarios take on the mythic role of a new ‘end of the world’ cultural narrative. Which way this turns out may depend on the tacit senses of agency which people have of themselves in society. The more global this context the less this may become. Thus the cultural and social models shaping and buried within our sciences, natural and social, need to be explicated and critically debated.

I have no doubt that *Silent Spring* energised and inspired many readers to become environmental activists and educators,⁷ but I suspect that many others might have been paralysed by its apocalyptic storyline, in

much the same way that the threat of nuclear holocaust prompted some citizens to work for peace and others to build bomb shelters. A thought experiment like *Dune* invites a socially critical approach to curriculum and curriculum inquiry because it foregrounds socio-political structures and agency as well as technoscientific responses to an environmental crisis.

Of course, all of this is to be wise after the event. If I had been disposed to think about texts in the 1960s and 1970s in the ways I think about them now I might have taught my high school and teacher education students very differently. My interest now is in what this sort of analysis means for my present practice as a university teacher and researcher.

The Telling: A Thought Experiment in Global Transition

I suggest that there are at least three reasons for educators to appraise speculative fictions that might help us to generate new ways of imagining global transitions in social environments and civil society in our present times and circumstances.

First, many nation-states are in various stages of economic, political and social transition from authoritarian regimes to more liberal and market-oriented societies and the role(s) that education can, should or actually does play in their democratisation remains open to question. For example, Holger Daun et al. (2002) report recent studies of student perceptions of and attitudes toward democracy and its representation in textbooks in Bosnia-Herzegovina, Yugoslavia, Mozambique, and South Africa, and conclude that 'a rather dark picture emerges in all four countries' (p.192). They found that 'curricula do not deal very much with matters on democracy or in a way that could make the students less authoritarian and more democratic' (p.192) and that 'judging from teachers' and students' answers, they do not see the school as a place where democracy and such matters are discussed and learnt' (p.193). Daun et al. (2002) also write that in these four countries 'it is evident that curricula and textbooks do not embrace a broad perspective of democracy (including the participatory type of democracy) and that large proportions of the students do not have what in Western liberal democracies is seen as democratic attitudes' (p.4).⁸

Second, although Western liberal democracies embrace the rhetoric of participatory democracy, it does not necessarily follow that education and other social practices enact or encourage active citizenship. For example, I have already noted the cultivation of spectator democracy in the

us, and I would argue that Australia during the past 20 years has fulfilled Marcus Clarke's prophecy – made more than 120 years ago – by becoming 'a Democracy tempered by the rate of exchange'.⁹ That is, Australian social and educational policy is now a function of the nation's position in a global marketplace understood as 'a grand democracy of consumption' (Edwards 2002).

This leads to my third reason for appraising speculative fictions that address global change processes. As globalisation blurs nation-state boundaries and undermines national authority, the grounding of public education systems in national democracies is destabilised. Carlos Alberto Torres (2002) notes that the purposes of public education have typically included preparing future labour for the nation's economy and preparing citizens for the nation's polity but that globalisation 'shifts solidarities both within and outside the national state' (p. 364). He thus argues that alternative futures for democratic education under globalisation must address the questions raised by the globalisation of the two traditional bases of formal education systems, namely, governance and economies (p. 364):

These questions are very straightforward: Will globalization make human rights and democratic participation more universal, or will globalization redefine human enterprise as market exchanges invulnerable to traditional civic forms of governance? Whether education as a publicly shared invention, contributing to civic life and human rights, can thrive depends on the future of globalization – a future that may offer the internationalization of the ideals of a democratic education or may reduce education, and civic participation, to narrow instruments of remote and seemingly ungovernable market forces.

Torres thus calls for a reexamination of education in the light of transformations of individual and collective identities into both more privatised and more globalised forms and concludes that 'to ask how educational policies could contribute to a democratic multicultural citizenship poses a formidable challenge to the theoretical imagination' (p. 376). I suggest that part of this challenge involves questioning taken-for-granted assumptions about the types of cultural materials and media that constitute appropriate resources for the 'theoretical imagination'.

Clearly, globalisation is a contemporary example of what, to borrow Hayles's (1990) terms (as quoted above), we could call an 'underlying

concern' that is 'highly charged within a prevailing cultural context'. We can reasonably expect that 'theories and models' of globalisation 'are culturally conditioned, partaking of and rooted in assumptions that can be found at multiple sites throughout the culture'. To understand the cultural work performed under the sign of globalisation we need to consider how different disciplines represent globalisation as a focus for inquiry and speculation and how they resolve the questions, problems and issues that arise from these foci.

I think it is fair to say that when we¹⁰ present globalisation as a topic in education courses or conceptualise it as an object of educational inquiry, we tend to privilege texts from a relatively limited range of disciplines and sites of cultural production. For example, books that explicitly link globalisation and education (e. g., Burbules and Torres 2000; Stromquist 2002; Stromquist and Monkman 2000) tend to rely on work in the economics, politics and sociology of education, comparative education, and policy studies. Scholars from other disciplines whose work is drawn upon by educational researchers again tend to emphasise areas such as economics, politics and sociology (e. g. Appadurai 1996; Bauman 1998; Beck 2000; Brown and Lauder 2001; Giddens 2000; Jameson and Miyoshi 1998; Waters 1995). These works rarely refer in any detail or depth to the arts and popular culture as sites for the production of meanings of globalisation.

Studies that relate globalisation to issues of multiculturalism, post-colonialism and identity politics (including diasporan cultural identities) are more likely to refer to examples from literature and the arts (e. g. Coombes and Brah 2000; Grant and Lei 2001; Hage 1998; Phillips 2001; Sardar and Cubitt 2002; Wilson and Dissanayake 1996). Few education academics are likely to question the relevance of Salman Rushdie's (1981) *Midnight's Children* or, more recently, Zadie Smith's (2001) *White Teeth*, to understanding the cultural identity politics of globalisation, but novels such as these come with relatively 'high culture' credentials. I suggest that many works of genre fiction – as well as many 'low' cultural artefacts, including advertising, blogs and jokes¹¹ – might be equally rich sites for exploring the wider cultural meanings and manifestations of globalisation.¹²

Which brings me to *The Telling*, Le Guin's most recent contribution to her series of so-called 'Hainish' novels and short stories. The common background for this series supposes that, at least half a million years ago, intelligent humanoids from the planet Hain spread across the galaxy

and settled on nearly a hundred habitable worlds (including Earth) that were then left alone for many millennia. Le Guin's stories imagine that communication and travel between the worlds has resumed and that a loose interplanetary federation, the Ekumen, coordinates the exchange of goods and knowledge among the myriad of diverse cultures, religions, philosophies, sciences and forms of governance¹³ that have evolved separately on the various planets. Representatives of the Ekumen travel to each planet when it is rediscovered and invite peoples of Hainish descent to participate in the federation, if they wish. Worlds have much to gain from joining the Ekumen, but also risk losing their distinctive identities.

Sutty is a Terran Observer for the Ekumen, a language and literature specialist who has travelled to the planet Aka¹⁴ to continue studies initiated by the Observers who first made contact with the Akan people some seventy years earlier. When she arrives she finds little to study because, while she has been travelling to Aka,¹⁵ the traditional culture has been brutally suppressed and almost completely replaced by a technophilic ruling class that has enthusiastically embraced 'The March to the Stars'. Differing local spiritual practices and dialects, and the ideographic writing and literature she had studied, are now deemed subversive, and Sutty finds that she might be the only person on Aka who can still read texts that were written only a generation ago. The Corporation that governs Aka normally forbids Observers from travelling outside the new cities, which have been constructed and settled since the first contact with the Ekumen.

Sutty unexpectedly receives permission to travel upriver from the capital to an old provincial town where she gradually finds her way into the unofficial, traditional culture of Aka, which still survives and to some extent thrives in the locations and activities of daily life that are most difficult to police. She learns of the yearlong and lifelong cycles and patterns of feasts, fasts, indulgences, abstinences, passages, and festivals – observances that resemble the practices of most of the religions with which she is familiar. These are now unobtrusively interwoven into the fabric of ordinary life so that the Monitors of the Sociocultural Office find it difficult to identify any particular act as forbidden.

Sutty's problem (and, as I read it, the novel's) is how she and her fellow Observers might help to 'save' this culture from the destruction that the Ekumen's arrival on Aka inadvertently precipitated. Sutty initially is hostile towards the leaders of the Corporation – personified by a Monitor who tracks her activities – but she also recognises that her hostility

is self-destructive and self-defeating. Her struggles with her own hatreds and self-doubts are in part located in the personal and historical baggage she brings from Terra to her work on Aka. Suttu grew up in a period of severe religious repression on Earth, and realises that she must learn to deal with her own tragic experiences of religious warfare and terrorism if she is to deal fairly with the Akans. The complexity of Suttu's background and its influence upon her development as an Observer offers a convincing vision of the difficulties and the opportunities of contact between different cultures for the people whose identities are constituted by those cultures.

Suttu begins to resolve her dilemmas when she leaves the city and listens to her fellow travellers talk about the events of their daily lives (pp. 34–5):

She heard about them, their cousins, their families, their jobs, their opinions, their houses, their hernias. . . . These dull and fragmentary relations of ordinary lives could not bore her. Everything she had missed in [the capital city], everything the official literature, the heroic propaganda left out, they told. If she had to choose between heroes and hernias, it was no contest.

Part of what makes *The Telling* so curiously compelling is its sustained focus on the lives of ordinary people and the subtlety and sensitivity with which it renders everyday life. As is the case with *Dune*, the stakes in the novel are high – the survival of an entire world's traditional knowledge and culture – but in *The Telling* the struggle for survival takes place primarily within the registers of daily life, because it is the very richness of 'ordinary' life that Aka's totalitarian 'March to the Stars' threatens. Cultural destruction on Aka proceeds by grand and hideous macropolitical gestures, but its traditional culture survives and flourishes in small acts – choices about what to eat, what words to use, what stories to tell. In this sense, *The Telling's* title can be understood as a call to witness and celebrate culture as the telling of stories that give form and meaning to everyday life. I see the politics that Le Guin dramatises here as being consistent with Nancy Fraser's (1993) feminist view of a 'global solidarity' that is 'rooted in a concrete sense of human interdependence in everyday life, a vivid sense of the forms of emotional and practical support people require from one another in daily life, not only when they are very young, very old, or sick but also when they are healthy adults' (p. 22).¹⁶

Thus, one reading of *The Telling* is as a thought experiment in rehabilitating democratic ideals in the wake of their destabilisation by global corporatism. As such, it addresses Torres's (2002) questions about globalisation's effects on solidarities within and outside the nation-state by imagining in rich and plausible detail how we might *perform* a citizenship premised on shared responsibility for each other's everyday existence. Although Fraser (1993) theorises this mode of solidarity as 'feminist', she emphasises that it does not require shared identity but, rather, a shared understanding of 'those upon whom we feel entitled to make claims for help and those whom we feel obliged to help in turn' (p. 22). Fraser's political principle clearly meets Torres's (2002) 'challenge to the theoretical imagination' but Le Guin delivers a similar challenge (and represents a similar principle) without the abstractions of theoretical labels. *The Telling* is a work of the *practical* imagination, a rehearsal of the concrete choices, decisions and actions that men, women and children can make to protect civic life and human rights (and resist their erosion) at a local, micropolitical level.¹⁷

Another reading of *The Telling* is to interpret its defence of daily life as an allegory of Tibet's plight under Chinese occupation. The ways of Akan telling resemble traditional Tibetan Buddhist practices and the modes of its suppression resemble Mao's Cultural Revolution. Le Guin confirms this interpretation in an interview with Mark Wilson (n. d.):¹⁸

I was really just trying to work out in fictional terms what something like the Cultural Revolution in China or the rise of fundamentalism in Arabic countries does to the people involved in it – whether it's the suppression of a religion, which is what happened in China, or the dominance of a religion and the suppression of politics, which is happening in a lot of the Arab world. These are terrifying phenomena – this stuff's going on right now, all around us. And it is something obviously that human beings are likely to behave this way given the right circumstances. So I sort of had to write a book about it.

Nevertheless, the Akan government is called the Corporation and the novel's vision is as applicable to the homogenisation of culture under corporate capitalism as it is to China's cultural wars. Le Guin's thought experiment gives us detailed historicised and contextualised visions of possible and plausible futures that are rooted in the choices we face in the present moment.

These two readings do not exhaust the many possible interpretations of *The Telling* but they should be sufficient to indicate that Le Guin's fiction shares what Hayles (1990) calls 'isomorphic assumptions' with the more self-consciously 'academic' literature of globalisation, governance and social transformation. Many of its interpretive (and thus, I believe, educative) possibilities lie in what at first seem like minor details. For example, almost every significant event in the book is reported to Suttu, who witnesses almost nothing directly, at any point (a little like the way many of us get our news of world events via CNN and its affiliates). Also, Aka is a world with only one continent, so that all of its peoples live on just one landmass. Suttu's reflections on the significance of this difference from Terra – and its implication for the politics of identity – are intriguing, especially in relation to her conviction that traditional Akan spirituality is not a 'religion' (pp. 98–9):

... religion as an institution demanding belief and claiming authority, religion as a community shaped by a knowledge of foreign deities or competing institutions, had never existed on Aka.

Until, perhaps, the present time.

Aka's habitable lands were a single huge continent with an immensely long archipelago of its eastern coast. . . . Undivided by oceans, the Akans were physically all of one type with slight local variations. All the Observers had remarked on this, all had pointed out the ethnic homogeneity . . . but none of them had quite realised that among Akans there *were no foreigners*. There had never been any foreigners, until the ships from the Ekumen landed.

It was a simple fact, but one remarkably difficult for the Ter-ran mind to comprehend. No aliens. No others, in the deadly sense of otherness that existed on Terra, the implacable division between tribes, the arbitrary and impassable borders, the ethnic hatreds cherished over centuries and millennia. 'The people' here meant not *my* people, but people – everybody, humanity. 'Barbarian' didn't mean an incomprehensible out-lander, but an uneducated person. On Aka, all competition was familial. All wars were civil wars.

We hardly need to be reminded of just how deadly our sense of otherness can be. The breadth of new antiterrorist legislation in nations such

as Australia and the US – coupled in Australia with the present federal government's paranoid approach to 'border protection' and treatment of asylum seekers that amounts to institutionalised racism – is eroding the foundations of respect for human rights in these countries and world-wide. *The Telling* provides us with empirical evidence of the *possibility* of thinking what to many humans is unthinkable, such as imagining a world without 'foreigners'. What would social policy (and educational policy) look like if we too assumed that 'the people' meant 'everybody, humanity'? Le Guin reminds us that it is possible to think differently about identity and community, and questions of inclusion and exclusion, without ever underestimating the remarkable difficulty of doing so, and the even greater difficulty of bringing new imaginaries into effect.

A Reflection and an Invitation

I have no 'conclusions' to this essay, but I will end it by offering a brief reflection on its production and an invitation to readers to continue its always-unfinished work. I began this essay with the hope that it would connect global transitions, educational inquiry and my reading of *The Telling* in ways that might be generative for other readers. I believe that the generativity of this essay depends, in part, on readers recognising that it consists of *explorations* rather than *explanations* and/or *exhortations* and that it exemplifies a mode of inquiry in which 'essay' should most often be understood as a verb – to attempt, to try, to test. In conceptual inquiry an essay serves a similar function to an experiment in empirical research – a disciplined way of investigating a question, problem or issue. Both 'essay' and 'assay' come to English speakers through the French *essayer* from the Latin *exigere*, to weigh. Thus, I write essays to test ideas, to 'weigh' them up, to give me (and eventually, I hope, my colleagues) a sense of their worth. For me, the act of writing an essay is a form of inquiry, and I usually do not know what the final thesis of my essay will be when I begin to write. Ideas about narrative, fiction, textuality and intertextuality are the instruments and apparatus with which I produce 'data' in my conceptual laboratory.

If my essay has been generative you might now be more disposed than previously to look for *sf* stories that can be read as social thought experiments and to explore their intertextual relationships with the canonical and/or commonplace academic and professional texts that inform your work. More importantly, you will have no hesitation in thinking of these explorations as a form of social inquiry.

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Notes

1. *Silent Spring* is considered by many critics to be one of the most influential books of the twentieth century (as its publication in the Penguin Modern Classics series indicates). It focuses on the effects of the indiscriminate use of chemicals, describing how pesticides and insecticides were being applied almost universally to farms, forests, gardens and homes with scant regard to the contamination of the environment and the destruction of wildlife. Despite condemnation in the politically conservative US press and attempts by the chemical industry to ban the book, Carson succeeded in creating a new public awareness of the environment that led to changes in government policy and inspired the modern environmental movement.
2. *Dune* is a multiple award winning science fiction novel that spawned numerous sequels. It is a lengthy and elaborate adventure with a labyrinthine plot, much of which takes place on a desert planet called Arrakis (or Dune). Arrakis is the sole source of Melange, a spice that is necessary for interstellar travel and grants psychic powers and longevity, so whoever controls it wields great influence. When the Emperor transfers stewardship of Arrakis from the Harkonnen Noble House to House Atreides an intricate power struggle begins. Through sabotage and treachery the Harkonnens cast a young duke, Paul Atreides, out into the planet's harsh environment to die, where (not without considerable difficulty) he falls in with the Fremen, a tribe of desert dwellers who he recruits to his quest to reclaim Arrakis. However, Paul might also be the end product of a very long-term genetic experiment designed to breed a super human – a 'messiah' – and his struggles with this possible 'destiny' are as difficult and as complex as those he faces in the desert environments of Arrakis.
3. As Haraway (1989) explains, since the late 1960s the signifier SF has designated 'a complex emerging narrative field in which the boundaries between science fiction (conventionally, sf) and fantasy became highly permeable in confusing ways, commercially and linguistically'; SF now refers to 'an increasingly heterodox array of writing, reading, and marketing practices indicated by a proliferation of "sf" phrases: speculative fiction, science fiction, science fantasy, speculative futures, speculative fabulation' (p. 5).
4. This literature included new periodicals such as *The American Nature*

Writing Newsletter from 1989, and the journal *Interdisciplinary Studies in Literature and Environment* from 1993.

5. An 'environmental awareness handbook' might seem to be a more appropriate description of *Silent Spring* than of Herbert's SF novel, but this is just one of the ways in which each book 'borrows' some of the other text's generic conventions. For example, *Silent Spring*'s first chapter, 'A Fable for Tomorrow', is written in the past tense and emulates (albeit somewhat clumsily) dystopian science fiction.
6. A much more obvious influence is Paul Sears's (1947) *Deserts on the March*.
7. Dillon (2002) quotes an 'Australian EE doctoral student' as follows: 'I read *Silent Spring* for the first time as a fourteen-year-old teenager. At the time I was horrified, but vividly inspired by this text. It provided a doorway to the environmental movement and . . . inspired me to enter the debate . . . Ten years have passed, and I am still intrigued by *Silent Spring*, such that I now endeavour to lead a career in the environmental movement and live my life accordingly' (p. 15).
8. Daun et al. (2002) note that participatory democracy appears as an important theme in South Africa's new curriculum framework and textbooks but that large majorities of students in all four countries agree with such authoritarian positions as 'every country needs leaders whose decisions are not questioned' and 'some political parties should be forbidden' (p. 192).
9. Marcus Clarke is a significant figure in the history of Australian literature, best known as the author of an epic popular novel, *For the Term of His Natural Life*. This quotation is taken from an essay, 'The Future Australian Race', published in *The Marcus Clarke Memorial Volume* (Mackinnon 1884, 251), but must date from some years previously since the term of Clarke's own natural life expired in 1881.
10. By 'we' here I mean People Like Us – academic and/or professional researchers and teachers who edit and contribute to journals like this one.
11. An email joke doing the rounds earlier this year alleged that the following was a 'High Distinction answer from ECO101 tutorial, first year, School of Economics and Commerce, Faculty of Arts, Australian National University':
 Q: How do you define globalisation?
 A: Princess Diana's death.
 Q: Why?
 A: An English Princess with an Egyptian boyfriend crashes in a French tunnel, driving a German car with a Dutch engine, driven by a Belgian affected by Scotch whisky, followed closely by Italian paparazzi, on

- Japanese motorcycles, treated by an American doctor, using Brazilian medicine. (Sent to you by an Australian, using American [Bill Gates] technology which he stole from the Taiwanese.)
12. To demonstrate that I am prepared to practice what I preach, I note here that I have included references to SF and/or popular culture in several of my own publications on globalisation (see, for example, Gough 1999; 2000; 2002).
 13. Readers who are interested in other thought experiments in governance are likely to find an earlier novel in Le Guin's Hainish series, *The Dispossessed* (1974), particularly rewarding. In some editions *The Dispossessed* carries a subtitle, *An Ambiguous Utopia*, which signals the novel's implicit questioning of the conventional form and substance of utopian writing in Western literature. The central character of *The Dispossessed* is a theoretical physicist located in a century-old anarchist society at a time when it is becoming more structured. Not to be confused with nihilism or libertarianism, philosophical anarchism is based on a belief that moral responsibility rests with individuals and views cooperation (solidarity, mutual aid) rather than competition as the key to evolutionary survival.
 14. Le Guin stresses the importance of naming things in both her fiction (see, for example, Le Guin 1987) and literary essays (see Le Guin 1989), so it seems very likely that she intends the name of the planet Aka to invoke the acronymic abbreviation 'aka' (also known as).
 15. A period of many years – the technology exists to transmit information instantaneously across any distance, but physical travel through space still takes a long time.
 16. Fraser (1993) outlines three other ways of formulating an 'inclusive, universalist, global view of solidarity as shared responsibility which does not require shared identity', namely: a socialist view 'based on . . . our interdependence in a common global political economy . . . where wealth is the common creation of all people's labor'; an environmentalist view 'based on our . . . interdependence as inhabitants of a common biosphere'; and a radical-democratic view 'rooted in the fact that we inhabit an increasingly global public space of discourse and representation . . . that might be redefined as a space in which all people deliberate together to decide our common fate' (p. 22). Traces of the latter view can be discerned in *The Telling* (and a variation on it is particularly apparent in *The Dispossessed*; see n. 11, above).
 17. Le Guin's non-fiction essays on SF and fantasy demonstrate a persistent engagement with feminist politics (see, for example, 'Is gender necessary? Redux' and other essays in Le Guin 1989) and much of her recent fiction challenges the gendered conventions of these genres.

18. <http://www.scifi.com/sfw/issue189/interview.html> (27 November 2002). By way of reflecting on my own textual strategies, I must point out here that I am not privileging Le Guin's interpretation of *The Telling* merely because she wrote it. I agree with the spirit of Umberto Eco's (1984) dictum that 'The author should die once he [sic] has finished writing. So as not to trouble the path of the text' (p. 7). I quote Le Guin for the same reasons that I use or paraphrase other authors' words: because their formulations and interpretations are agreeable to me and because I am self-consciously writing in a genre of academic journalism characterised by the rhetorical deployment of frequent quotations and citations.

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Vital Approach to Transition: Slovene Multiple Case Study

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This paper uses a multiple case study to suggest the effectiveness in application of an integrated model for the design of sustainable change strategies in high velocity environments and organizations. The model integrates awareness of current organizational cultural characteristics with leadership intent and strategy formation. The cultural analysis provides a lens through which diverse organizational values are exposed and stakeholders can assess organizational alignment with the external environment, organizational mission and future vision. Using the inherent differentiation of values as creative tensions, strategies are formulated for purposeful change to improve alignment. Leadership inquiry is used to suggest an alignment of personal intent with the strategic initiatives to project sustainable change. This Values, Inquiry, and Tensions Alignment for Leadership model (VITAL) is applied as an intervention sequence which provides information, direction, and motivation for sustainable change in transition organizations and environments.

Context of the Study

The recently formed democratic nation of Slovenia is scheduled to join the European Union in 2004. This independent state, as a part of the former socialist federation of republics of Yugoslavia, is undergoing evolutionary changes in its social, economic, governance and educational systems and structures. There are fundamental shifts from its socialist history toward globalization, modernization and evolution of leadership and management practices. While change in the business environment has been moving forward at a rapid pace, public administration and non-profit sectors lag in capacity development and implementation of participatory practices. This paper provides a review of a multiple case study of three non-profit sector organizations and an in-depth analysis of one of the cases. The intent of the paper is to consider the cases in the context of complex societal changes taking place in Slovenia and to suggest a practical model for designing change strategies based on the

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tenets of democratic values and grounded in organizational and management theory. The results of the study are indicative of the potential for effective and sustainable change strategies based on aligning organizational culture, leadership intent, and strategy development. The in-depth study demonstrates the use of inquiry, analysis, and problem solving to suggest an integrated developmental path. As a result of the comparative case study and the in-depth study, a model was developed suggesting evolutionary change processes for organizations in transition in the midst of societal change. The application of three analytical tools in a holistic model, Values + Inquiry + Tensions Analyses and Leadership (VITAL), can provide a set of high leverage strategic change options for leaders. The holistic focus provided by analysis of organizational culture, the perspective variety elicited from two institutions and one non-profit organization, the integral nature of the models fitting together to form a whole picture, and the action research application of each of the tools collectively generate a syncretic result. The data composite can initiate new perspectives and changes in mental models as well as make deep patterns of organizational behaviour and cultures possible.

Embracing the values of openness, participation, accountability, effectiveness, and coherence (Commission of the European Communities 2001) involves profound changes which require radical changes in values, beliefs, behaviours and modes of organizing for learning for Slovene managers and leaders. A common and fundamental attribute of non-participative, ruled societies is that ruling authorities have power over, control of, or decide for others who are perceived in some way as less important, less valued, less able or less entitled. This deeply embedded attribute and belief structure is characteristic of the historic leadership, management, and educational practice in the Eastern and Southeastern European region. As a fundamental principle of leadership based on democratic values, participation in collaborative processes from common core values, while sustaining the power of diverse perspectives, is key.

To accomplish a shift in values, to move from prior paternalistic and authoritarian styles, to promote inclusion and solidarity for inclusive policy design, decision-making, and action, changes in the educational infrastructure for leadership development are essential. To reflect 'new' democratic values, institutions of higher education must be accountable for establishing and sustaining an integrity of doing what they say leaders and managers must do to avoid an inherent misalignment between val-

ues in action and the voice of espoused values. Just as former oppressed societies must undergo deep cultural change, institutions responsible for the development of future leaders must consider deeply embedded patterns which sustain an alignment with values of a socialist society. Leadership and management approaches and belief structures must be examined and patterns modified in order to enable the development of vibrant, 21st Century leaders and managers in a diverse and integrated society. This study examined the status of this shift in three organizations charged with the education of leaders and managers in school administration, business and economics, and youth development. The study looked at the alignment of organizational culture, leadership intent and environmental conditions to posit strategies for effective change.

It is against this backdrop of analysis of the emergence of the democracy of Slovenia, its transition from authoritarian rule and its consolidation toward greater maturity in evolving its democratic form, that this paper is situated. In his commentary on Slovenia, Rizman (2001) suggests shifting of these mental models is a technical (p. 5) development need. Given the history of this country, a hesitancy to trust authority is an apparent undeveloped attribute of Slovenia in its emergence as a civil society. It could be argued that these attributes are reflected in any society in conditions where patriarchy and authoritarian rule have been normalized into management and leadership practice (Northouse 2000). In post industrial era America many organizations and populations could be described in similar ways. This stage of evolution is an illusion, projecting the image of stability on the surface that is sourced and maintained through more subtle forms of dominance and control, carrying forward residuals of patriarchy and patronage. As shifts in environment and humanistic thought occur in industrialized and emergent civil societies, one can see similar patterns change through developmental stages toward more complexity and integration of more diverse forms and processes of organizing.

In considering patterns of alignment between environment, organizational forms and processes and leadership, leaders in stable environments mirror the attributes of an organization in stable environments. The emergent globalizing and interconnected world and organizational environment of the 21st Century is fluid, open-ended, turbulent, and subject to the rapid change and complexity fostered by the information driven knowledge society and the transition to service-based economies. It is clear in the organizational literature that organizations in general,

regardless of democratic maturity, face similar issues (Mintzberg and Quinn 1992). In the organizational cultures that have emanated from industrial based organizational knowledge and capitalistic values, managers and leaders face the same challenges as those in emerging democracies. The difference may be in the scale, scope, and depth of the paradigm being challenged. Any environmental shift which presents challenges to historic patterns or belief structures, those closely held paradigms which are known and from which we have from antiquity found our solidarity, beckons the emergence of a corollary shift in leadership attributes, skills and tools (Quinn 1996).

The change facing former ruled societies as they move toward democratic participation in governance, suggests deep cultural, organizational and psychological shifts. To begin addressing the best practice methods for preparing leaders and managers challenged with facilitating these deep shifts, this paper examines the results of a pilot study of two related test case institutions of higher education infrastructure in Slovenia. These institutions are in a state of flux. Each is in a major transition process as an organization, moving from dependency on established universities to interdependency, in relationship as peers with official designation and acceptance as university level institutions within the structure of the education system of Slovenia. The third case examines the cultural typology of a national youth service organization that has existed and thrived in Slovenia during the time of former Yugoslavia until the present day. In comparing these three cases, it is interesting to note the patterns that suggest current states of alignment or misalignment between organizing, leading and interacting with their environment. These institutions additionally provide a potential microcosm of the status of leadership competency development and process of change that mirror the transitions occurring in the larger Slovene society. The cases provide a snapshot of the key teaching and learning environments and the competencies currently viewed as foundational for leadership and management in the business, non-government, and educational sectors.

Slovene Cases

Modern day philosopher Ken Wilber calls for higher, wider and deeper understanding of the world in which we live and towards whose evolution we contribute (Wilber 1998). In response to this call as a research and theoretical challenge, three Slovene organizational cases were studied between January and February 2002. A pilot and follow-up studies

were conducted to determine the possible developmental status of leadership and management preparation in a society in transition, Slovenia. The pilot study was conducted to raise the awareness of the potential information available from institutional and leader self-analysis, to raise the level of trust between the researcher and institutional members to enable a full study, and to test the value of the syncretic triangulation of the three analytic methods. The study gives institutional leaders and members an opportunity to consider to what extent their organizational culture reflects historic models of bureaucratic and mechanistic characteristics associated with stable and known environments consistent with old world and industrial societal forms (Daft 1983). Leaders and managers of organizations can determine whether the institutionalized culture reflects attributes of more evolutionary, organic and open cultures of inclusion and flexibility consistent with rapidly changing and complex external environments (Daft 1983; Morgan 1986). Information collected can be used to determine the appropriate and desired organizational cultural characteristics on which to focus a developmental change process (Cameron and Quinn 1998). The institutions involved in the study can strategically plan for organizational and personal development. Change can be planned to be consistent with the emerging environments, roles and identities of their new organizational status and their emergent potential for shaping the developmental, educational and credentialing infrastructure for Slovene society and the management and leadership of its organizations.

Two higher education institutions in Slovenia and one youth service organization were studied. Case 1 is a college that has an educational focus on economics and management. Case 2 credentials master degree students in educational administration. Case 3 provides educational and leadership development programming for youth and is part of the international scouting movement. The analysis of the educational programmes for future leaders and managers of Slovene society provides information with which to intentionally modify teaching methodology, organizational attributes and curricula. An analysis of the current preparation of leaders in secondary and primary education provides information about what new educational programmes or course content will be needed to prepare students to enter into the European Union or other environments that embrace pluralistic democratic values and principles. An analysis of a youth development organization provides a benchmark against internationally guided programming for youth from which

to view the institutions of higher education and to speculate about the larger societal development. If these organizations and their respective leadership are congruent with their environment, with the requisite variety of a holographic organization (Morgan 1986) the organizations and the training provided would align with and reflect cultural environments in which deep societal transitions are occurring.

Quinn's (1990) Competing Values approach has been applied as a comprehensive analysis tool for organizational effectiveness, leadership role assessment (Quinn 1990) and as an organizational culture analysis tool (Cameron and Quinn 1998) by practitioners and theorists since the mid 1980s. The Competing Values Model (CVM) identifies distinctions in personal and organizational tendencies and patterns of behaviour based on certain inherent values and underlying psychological archetypes. Its reliability and validity as a typological, action research, and diagnostic tool are well established. Key dimensions of the model, with a cultural focus, are noted in Figure 1.

The first analysis tool, the Competing Values Model (Quinn 1990), was applied as an organization culture assessment (Cameron and Quinn 1998). The Competing Values Model organizational culture assessment instrument was administered to full time staff in all three organizations and to full time faculty in the institutions of higher education. An analysis was completed of the programmes of study offered by the institutions of higher education. The results of the organization culture analysis for each organization indicated unique cultural attributes for most of the cultural dimensions, with one exception. The leadership component was similar for both institutions. In both cases, leadership was perceived to be congruent with hierarchical values and a hierarchical culture. In the management institution case, the perception of hierarchical leadership was clearly the dominant one; in the educational leaders institution case there was also an opposite tendency towards perception of leadership as consistent with an adhocracy culture. The overall culture profile and the profile of the leadership dimension for each of the institutional cases is depicted in Figure 2.

In their research, Cameron and Quinn (1998) found a need for congruence between the different components of an organization's culture as well as a need for alignment of the organizational culture with the environmental conditions. Intuitively, there follows the imperative for leadership competence to align with both the environmental conditions and organizational culture. For both institutional cases, hierarchical leader-



Figure 1: Key Dimensions of the Competing Values Model
(adapted from Cameron and Quinn 1999)

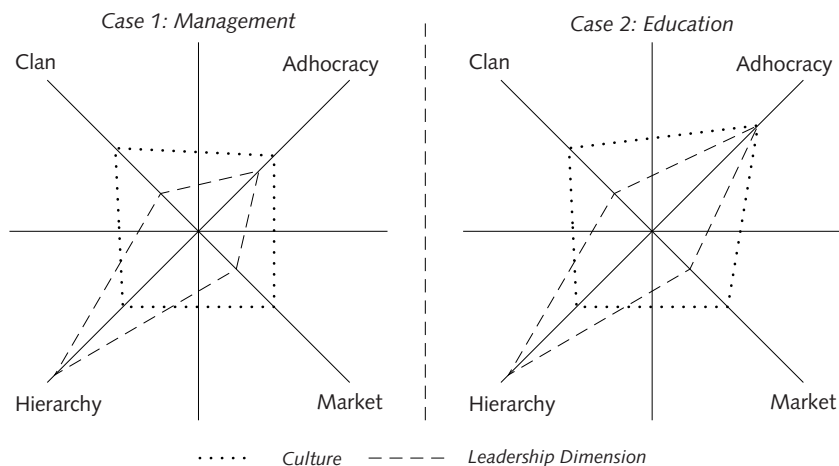


Figure 2: Case Specific Culture and Leadership Dimension using Competing Values Model

ship is inconsistent with the needs of organizations based on their dominant cultures (Cameron and Quinn 1998) and the nature of the environments in which they find themselves (Daft 1983). The cultural analysis of both institutions noted by the dotted line in Figure 2, reflects stakeholder experiences as more balanced in each of the quadrants than the leadership competency analysis. Environmental aspects of change, complexity and turbulence discussed in the context of the study suggest that successful performance of the institutions would require leadership competence that is high on adaptability, innovation, stakeholder brokering, and resource acquisition. As noted in Figure 2, the leadership competencies identified in both cases by the solid line are consistent with environments and organizations that are stable, simple, and with behaviour demonstrating historic patterns tending toward security and control, indicating a mismatch between leadership competence, the internal culture and environmental conditions. In both institutional cases, leaders' and managers' effectiveness will depend on their competence in operating in an open system characterized by high turbulence, rapid change, high diversity of involved stakeholders, and open information flow or transparency.

Instructional Programmes Analysis

The instructional programmes in the institutions of higher education were analysed by sorting required and elective course topics using the

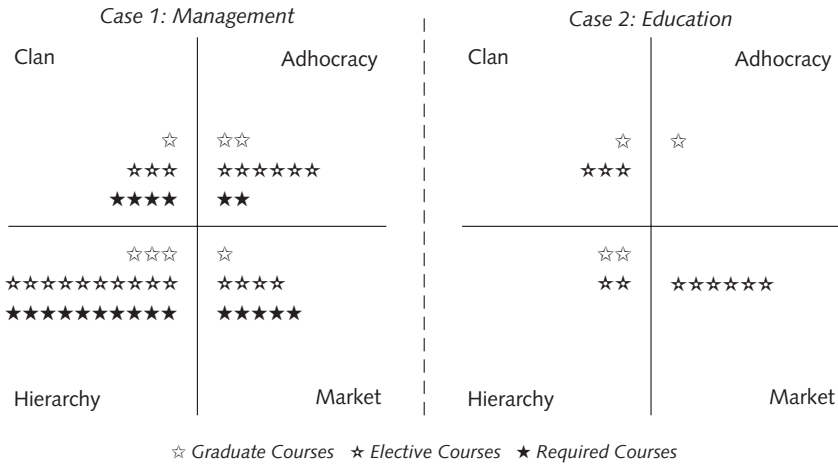


Figure 3: Course Distribution in Institutional Cases

cvm. Instructional emphasis and inferences about competency development were determined by considering the number and distribution of courses offered in each of the quadrants. Also considered in the analysis of instructional programmes was the distribution of required as compared to elective courses. The analysis of the programme of study for managers in Case 1, at undergraduate level, revealed there was an emphasis on hierarchical, stability seeking oriented courses. There was a lighter relative distribution of required courses available to provide competency development for more flexible, open organizations and market driven organizations. The majority of both required and elective courses at graduate level are oriented towards capacity building with an assumption of stable environments and hierarchical organizations. At graduate level, the clan and market organization competency courses are not as available as the other two quadrants. In the analysis of the education administrators' curriculum, the most notable revelation of the distribution was no required coursework related to a market culture with a productivity and quality customer service orientation. This case also demonstrated a lack of curricular balance. In both cases the current curricula emphasis is incongruent with the prevailing environments of change, complexity, and turbulence. Figure 3 provides a view of the distribution of course offerings.

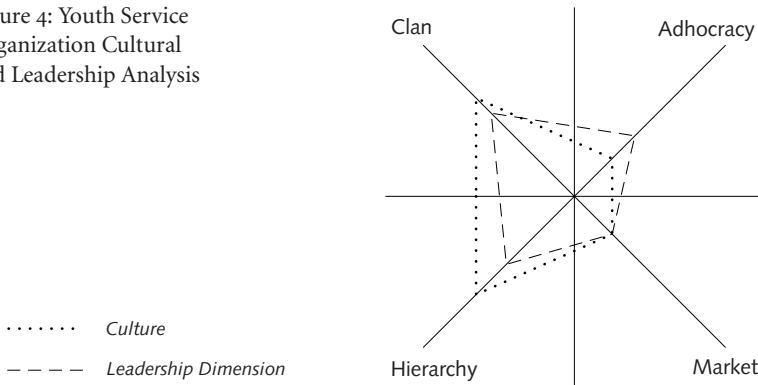
Based on decades of leadership in management education at the Wharton School, Russell Ackoff (1974) suggests that there are significant problems with management education programmes in the United

States and abroad. Because of their focus on teaching content rather than enabling students to learn how to learn, using the content as the medium for learning rather than the end goal of teaching, graduates of management programmes are ill equipped to manage (Ackoff 2002). The Case 1 programme was modelled after programmes in the US and the Case 2 programme was modelled after a programme in the UK. The fundamentals of both programmes are focused on the functions, analysis, and techniques of business management and administration, respectively. This is consistent with recent reflections on the evolutionary or developmental status of education programmes that indicate that current programmes are designed from knowledge of 1908 business forms and 1950s business strategies (Mintzberg and Gosling 2002). Pfeffer and Fong further review the research on curriculum in business schools citing that the content of what is taught in business schools is not correlated with business success (Pfeffer and Fong 2002). Consistent across the literature is a call for a learning focus, live and real application of theoretical material, focus on interpersonal and leadership development and active engagement by the student in the process of interaction and learning in the classroom.

Competing Values Model Summary

The analysis allows the institutions to take a more comprehensive or wider look at institutional cultural attributes and the scope of coursework or competencies being offered for the leaders and managers of corporations, government agencies, non-profit organisations and schools in Slovenia in the next ten to twenty years. Curriculum development might be geared to fill in the gaps and shift emphasis from functional content to improving skill development that reflects the open systems forms of emerging democracies and aspirations of the European Union. Using this analysis tool, the institutions have a greater awareness of how their organizations fit within the context of the current transitional environments they face and can make strategic decisions with a more tangible sense of appropriate and congruent action which will support their effective development. In consideration of the institutional cases in comparison with the youth service organization case, one can make the observation that there is organizational variability within the same culture, simply by considering the different shapes of the culture and leadership profiles. The Youth Service organization represents an organization not under the same political and educational restrictions as the institutions of higher education. This provides a within the culture yet an 'outside

Figure 4: Youth Service
Organization Cultural
and Leadership Analysis



the system' perspective which offers insights about the organization itself and is useful as a comparative reference. When the organizational culture of the institutions is compared to the youth service organization, there is a clear difference in the shape of the culture in its demonstration of greater orientation toward humanistic values and a lesser emphasis than the institutions on open interaction with the environment. In comparing the leadership attributes between the institutions and the youth service organization it is noted that there is a similar lack of focus on the values of network management and similar lack of production orientation. There appears to be a less hierarchically oriented style of the leadership in the youth service organization compared with that which exists in the institutional cases. Figure 4 shows the two profiles of the youth organization case.

The intent of this study was to introduce a new, integral and comprehensive action management tool that the leaders of the organizations could use to make more informed strategic choices and to consider critical change paths. Further research with more cases would enable a depiction of the national culture of schools of management and educational administration. It is one thing to cognitively understand cultural attributes and leadership styles, it is a different challenge to determine strategically an appropriate change emphasis. While the cvm provides a perspective of gaps, current and potential cultural attributes, and methods for developing competencies (Quinn and Faerman 1996; Cameron and Quinn 1998), a different model can provide leaders and managers with an effective method for engaging the dynamics of different values within the same organization. In order to apply, in action, the results of the culture analysis in the institutions studied, a strategic analysis and

action planning tool was used to determine, given the culture, leadership and environmental conditions, a reasonable strategic agenda for each of the institutions. Consideration was given to the best possible change initiative to potentially pursue that had the greatest alignment with the organization's mission and vision. This tool was used only with the institutions of higher education with which there was direct access to the leadership of these organizations.

Tension Model Analysis

The Tension Model (Nutt and Backoff 1992) uses inherent polarities of values, behaviour patterns and cultural norms within organizations as a means of suggesting generative or creative, inclusive, collaborative strategies. The Tension Model was used to determine whether the orientation of the leaders' strategic intents aligned with environmental and cultural conditions of Slovene society and the specific organizations of which the leaders are a part as the process of complex transition unfolds.

The inherent tension between the normative tendencies represented by the quadrants of the cvm suggest the real life interplay between the mental models, embedded patterns of leadership and management practice, and organizational culture. The recognition of these natural differences serves as a catalytic force for change (McWhinney 1997), inviting the discovery of a higher order of potential developmental strategies by integrating the apparent paradoxical tensions. By framing the apparent paradoxes within a higher order potential, or holon as Wilber (1998) would suggest, and embracing the paradox, more powerful and influential strategies can emanate from the creative tension. Higher order strategies are required for the organizations to break the historic and deeply embedded patterns of leadership and management in Slovene society (Rizman 2001). This break from embedded patterns would allow accelerated movement toward and alignment with a preferred organizational culture while effectively meeting the demands of transitional societal and institutional environments. Leadership practice would need to shift from the hierarchical mode to incorporate more humanistic and consumer focused attention.

Because of the inherent tensions and comprehensive robustness of the Competing Values Model, it is used as an orientation backdrop for applying the Tension Model (Nutt and Backoff 1992). The Tension Model was applied as an analytical tool to the cvm cultural dimension of leadership. Both institutional cases examined had similar leadership profiles.

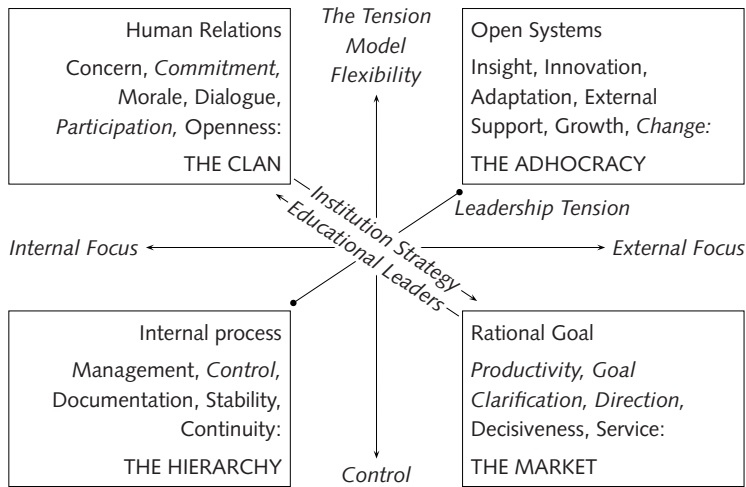


Figure 5: Tension Model High Leverage Strategies

The Tension Model was applied using the tension between the pull toward hierarchical tradition-bound leadership and the simultaneous pull toward open systems growth and innovative leadership consistent with environmental flux, turbulence and transition. An underlying 'driving' value is identified for each end of the tension (values that drive internal stability and control, and values that drive external network development and stakeholder collaboration). A higher order value that includes both of the driving values is identified to embrace the whole of the tension. Strategies and actions are then derived from an inquiry into how the organization can articulate that higher order value. With experience in applying the model in many organizations, it has been found that the most powerful strategies to catapult beyond a tension are located in the CVM quadrants perpendicular to the tension being managed. The tension engages two of the quadrants; the goal and solution reside in the other two quadrants. What the organization focuses on and how it gets there create a balance of competing values and a dynamic spiraling affect that induces effective change that serves to align the organization and strategically pursue a desired cultural shift. The two example strategy derivations are depicted in Figure 5.

Organizational Culture Assessment

The Tension Model analysis when used in isolation might yield the same strategic choices for both cases. The orientation of the strategic choices,

however, is different because the cases had very distinct organizational cultures as a whole as determined by the CVM analysis. In the educational leadership institution, Case 2, where the culture was aligned as an adhocracy with the exception of the leadership component, the high leverage strategy would suggest a change in leader behaviour. Current leader behaviour was perceived to be consistent with controlling and monitoring roles while the organization operates in an open system. The outcome and strategy would be directed toward alignment of the leadership behaviour with both the cultural orientation and environmental conditions. The leadership component was the only skewed aspect of the organization's culture and the organizational culture is congruent with the dynamic and turbulent transition environment in which it exists. Therefore isolating a strategy directly related to leadership behaviour change was straightforward and intuitively clear from the analysis.

The strategic intent of change could be focused on making developmental adjustments in the leadership behaviour to create congruence with the other facets of the culture. This type of strategy would access alternate quadrants, using the CVM as an orienting tool. A focus on more involvement of staff in the decision-making process by activating the values of productivity and effectiveness of the curriculum might provide the potential for expansion of leadership competence in innovation and adaptation to bring the leadership facet into balance with the other aspects of the culture.

In considering the management institution, Case 1, where the cultural assessment revealed no alignment between cultural components, a potential outcome that the organization might desire is a clear focus and strategic direction, to activate the values of productivity and effectiveness. The clear focus and direction can be developed using a participatory process in which the higher core value of human potential is used as a lever to create an organizational vision and strategic plan. Thus the inherent tension between hierarchical control and the open flexibility of adhocracy is balanced by creating a generative tension between process and product, using participatory visioning and strategic planning.

There are additional tensions at play in the organizations between quadrants that are over-emphasized and quadrants that are less developed. The tensions chosen for strategic analysis were selected for illustration. If the organizations chose to develop to a next stage of competence in maximizing the spiral balance of responsiveness in all four quadrants, strategic agendas for each of the tensions would be necessary. Other fac-

tors influence the ability of an organization to pursue the strategic solution identified. This is a story of raising leadership awareness by looking through a wider analytical lens, exploring the potential hidden with the tensions of competing values, conducting an inquiry into leadership motivation, and as action research, there were no limits or boundaries identified that would limit or eliminate potential strategies.

Logical Levels Analysis

The third step in interacting with the leaders of the institutions of higher education was an application of an inquiry process using neurolinguistics developed from the field of neuro-psychology. This inquiry tool invites consideration of environment, behaviour, capacities, beliefs, values, identity, and life purpose to form personal strategic direction and action. The inquiry was derived from the Logical Levels of Experience Model (Dilts 1996). This model provides the potential for a deep exploration into a metaphor of identity that incorporates both the real and the potential of past, current and future experience. In the process of inquiring into deeper leadership values and motivations, it is possible to determine if there is alignment between the individual's deeper structural patterns and the envisioned strategic agenda for the organization. As the third analytic perspective, the two administrative leaders of the institutional cases were asked to complete a series of questions that access Logical Levels of Experience as defined by Dilts and McDonald (1997). The questions were intended to elicit the following information:

1. specification of a particular outcome for the institution,
2. the deeper value that is the driving force for desiring the outcome,
3. the measures or evidence for when the outcome has been realized,
4. the personal barriers to realization of the outcome,
5. competences the leader has and needs to realize the outcome,
6. first action steps and timeline, and
7. personal metaphor representing the leader leading the organization toward the outcome.

The questions were intended to invite the leaders to reflect more deeply on individual motivations for behaviour and to raise awareness of whether current behaviour is consistent with deeper core values, personal life purpose, and self-identity as leader. Tapping this deeper sense of purpose and archetypes through metaphor provides an individual

access to volitional, spiritual and emotional sources for action. (Marcic 1997) Because of the short-term access to the organizations and leaders in the study, it is unknown at this time whether the leaders actually changed their behaviour as was indicated in their responses to the questions. It is arguable that organizational change at the cultural level begins with individual change and that leaders have the potential to influence the direction and speed of change (Jawarski 1996; Quinn et al. 1996; Senge 1999).

In an analysis of leader responses to the questions, the CVM was used as a framework and the Tension Model as a compass. In the case of the management institution, the outcome identified by the leader was a sense of professional successfulness, interpreted as a rational goal oriented outcome. The strategy selected to achieve that goal was to focus on limiting the personal scope of work by reducing the amount of time spent in the office and doing only the work that was within the parameters of the leader's formal position. The leader identified an outcome and behavioural change in the same quadrant, externally focused rational goals. When asked to identify how others could support the leader to accomplish the desired outcome, the leader stated the need for others to do their assigned work. This response again aligns with the overarching value of productivity. The leader identified a 'human being' as the metaphor to represent future development. In the interview, the leader could offer no qualitative description of the chosen metaphor. This lack of qualitative description may be an indicator that the leader may not have tapped the inspirational power of a life metaphor at the time of the interview. Fox and Amichai-Hamburger (2001) argue that emotions are an important component to consider in creating and sustaining successful change initiatives.

The analysis of the Case 1 leader's strategy yields interesting results when viewed in conjunction with the CVM and the Tension Model analyses. The organizational level analyses indicate that cultural change toward more open systems and leadership that supports that, would be most congruent with the organization's institutional and societal transition environments. The chosen personal change strategy would not move the leader or the organizational culture in the direction of alignment with the environment. It is unlikely that the organizational culture will be positively impacted with the implementation of the leader's action and there is some question as to whether the outcome will be realized by enacting the chosen strategy. A vicious circle around control of

self and others from a hierarchical mental model towards high productivity and internal monitoring prevails in the leader strategy. The strategy selected and action envisioned continues to play on the tension line in the lower control portion of the CVM. The open system, transition environment in which the organization operates, requires high flexibility, innovation and collaboration internally and externally (George 2001). Attention to process, or management of the means to goals is a competence for the future (Johnson and Broms 2000) that has not been developed as a competency by this leader. The current leadership competence and future strategic intent appear to be incongruent with the emergent organizational leadership needs.

In the case of the educational leaders' institution, Case 2, the desired outcome for the leader was a personal change in leader-colleague relationships. The leader intends to shift attention away from attempting to control consequences for others towards managing personally meaningful consequences. The strategy for achieving this outcome was to begin to work together with colleagues beyond what is needed to complete classroom teaching and administrative tasks. From an original orientation in the hierarchical quadrant, the leader tapped the rational goal quadrant by envisioning the institution in the future and how the leader would be performing as a member. The leader activated the human resources quadrant by using a participatory strategy. In analysis of the leader's strategy, it fits the criteria as a high leverage strategy for organizational change. It activates quadrants adjacent to the quadrants producing tension in the organization, an outcome of productivity and a process of collaboration with human resources. Because the leadership quadrant is the only aspect of the culture that was out of alignment in Case 2, if this strategy is successful, the organization will be in a position to sustain its congruence with its high transition environment, thus be in a peak performance state.

Discussion

Integrating and activating diverse values is a key ingredient for organizational versatility. This organizational capacity is needed to accommodate sustainable change. This implies having the leadership capacity to access embedded patterns and activate generative tensions to cope with the turbulence and flux of transition environments, diverse workforces, and intercultural interaction. Using these inherent tensions to generate creative and intentional directions for leader and organizational devel-

opment provides an inclusive approach for collaborative breakthrough strategies. Examining leader intent at a deep psychological level that taps personal and professional inspiration is an important tool to invite an alignment of personal vision with organizational change and high performance. Use of these analytical tools, following a practice of strategic inquiry and supportive dialogue provides higher, wider, and deeper information from which to make strategic choices and to engage a journey of sustained change in environments of transition.

These three models for organizational and leadership assessment and analysis, when used separately, have unique contributions to make in extending awareness, raising the level understanding, sourcing the origins of motivation, and encouraging action. Applied in concert these individual approaches become an integrated model for guiding wider, higher, and deeper evolution. When used as a disciplined leadership practice for human resource development, the information elicited can be the basis for sustainable development of individual leader competence, organizational effectiveness, system development and societal transition. The power of these models lies in their fluid applicability in multiple contexts, organizational types, levels of organization, and individual patterns. While the tools emanate from different theoretical fields they each engage mental, emotional, physical, and spiritual human systems. These systems are the underlying driving forces for human patterns of behaviour. Given the attention to the sources of behaviour, and the breadth, depth, and scope of the models, sustainable change and evolution are not only possible but can be observed in practice.

The results produced in the syncretic application of the models, as demonstrated by this pilot study, offer the possibility of sustainable change given their individual and collective integral nature (Wilber 1998). The application of three analytical tools in a holistic model, Values + Inquiry + Tensions And Leadership (VITAL), can provide a set of high leverage strategic change options. Given the holistic focus, perspective variety, integral nature, and action research application of each of the tools, and their syncretic result, changes in mental models and deep patterns of behaviour and cultures are possible. In each institution, the efficacy of the VITAL model as a catalytic and guiding approach will need to be assessed. The potential of the VITAL model to reveal in the microcosm of individual organizations, the conditions of a larger society in transition, remains to be assessed. The power of the approach to raise awareness and ultimately influence institutional, leadership, and

curriculum development, and the impact the study will have on the educational infrastructure of Slovenia remains as inherent potential.

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Educational Leadership for Results or for Learning?

Contrasting Directions in Times of Transition

David Oldroyd

Educational leadership, like educational systems and schooling, is steered by the national political, professional and social contexts in which it occurs. In recent years, managerialist values have informed the policies of many governments and 'new public management' challenges the ideals of 'progressive humanistic leadership' in schools in many countries. The former approach is driven by results and demands for accountability whereas the latter favours an holistic, child-centred approach to leadership in which educational leaders at both system and school levels adopt a proactive, empowering and participative approach based on humane values of personal and organisational learning. Newly professionalised educational managers in the transforming systems of central and east Europe face the difficult task of reconciling these two differing directions. Scholars, researchers and developers of educational leadership have a key role to play in helping to deepen understanding of the dilemmas created by these contradictory trends.

As a field of study, educational management has a history of around three decades (for a wide-ranging overview of the field of educational management see Bush, Bell, Bolam, Glatter, and Ribbins 1999). Its literature has grown at an accelerating rate along with the professionalisation of educational management. Up to one third of teachers in some countries are now managers or coordinators of other professionals in their organisations. In the countries of central and east Europe that are undergoing fundamental transition, some complex and difficult choices about schooling and educational management are needed. In impoverished education sectors with little prospect of substantial increases in public funding, which is the appropriate road of transition to follow? After a brief examination of the changing context of educational management, I shall distinguish between two broad roads:

1. 'New public management' or 'leading for results' – the drive led by politicians for higher, measurable, visible standards of effectiveness and efficiency and equity to meet the challenges of global competition in a rapidly changing world.

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2. *'Progressive humanistic leadership'* or *'leading for learning'* – leadership that seeks to empower professional staff and young people based on principles of humanism, democratic citizenship and holistic personal and organisational learning.

These are highly generalised categories that label complex meanings. The former is the main politically driven direction in most OECD countries led by the UK and the USA. The latter is more associated with current policy and leadership practices in the Scandinavian countries although it has advocates among education professionals in many countries (see OECD 2001). The roads are not completely separate and sometimes intersect. Different ideologies and orientations underpin both. However, the tension between these two roads is widespread and presents educational leaders with dilemmas that are difficult to reconcile. They give rise to a number of trends in educational management that impact with varying force in different national contexts.

Contexts and Change

Educational management is strongly influenced by the political and social contexts that steer school systems in certain directions. Globalisation, post-modernity, advances in social and neuro-science, historical traditions, social and political reconstruction provide the context for educational change. In recent decades, these contexts have been steering education at an accelerating rate towards change. Education is seen as part of an 'unfinished revolution' (Abbott and Ryan 2000) that is being driven in directions not always clear and often confusing or contradictory. The forces that drive educational policy forward include a combination of political, professional and public pressures that operate differently from country to country. However, the common experience is increased uncertainty, accelerating change and a consequent 'educational crisis.'

A new discourse of globalisation has arisen which leads most countries to perceive an 'educational crisis' that is affecting the ability of nations to compete in the global market. Bottery (1999) discerns in 'managerial globalisation' a global picture of management practice in which there is a convergence of the business and public sector 'codes' leading to the use of concepts such as quality, competence, target setting, empowerment and learning organisation in the public as well as private sectors. This convergence between management in the private and public sectors has contributed to both of the roads outlined in this paper. The positivistic, neo-Taylorism represented in new public management contrasts

Table 1: First and second order educational changes

| 'First Order' Educational Changes | 'Second Order' Educational Changes |
|--|--|
| <ul style="list-style-type: none"> • Constructivist learning approaches • Brain-based teaching methods ('accelerated learning') • Teaching for understanding ('deep learning') • Development of 'key skills' (communication, emotional intelligence, problem-solving) • Student self-evaluation • Collaborative group learning • Problem-based learning • Commitment to life-long learning | <p><i>Associated with new public management</i></p> <ul style="list-style-type: none"> • Results-based accountability for pre-specified standards and targets • Market competition between schools • Staff appraisal and performance-related pay <p><i>Associated with professional empowerment</i></p> <ul style="list-style-type: none"> • Restructuring of the school as a professional learning community • Transformational school leadership (vision, mission, strategy, re-culturing, learning organisation) • Continuing school-based professional development CPD |

strongly with the learning organisation principles linked to progressive humanistic leadership, but both derive from business management theory and practice.

Educational reform in most economically developed countries in recent years has involved centralised mandated change in curriculum and assessment and a deluge of reforms imposed by central government (bureaucratic control). At the same time budgets and the implementation of policy mandated by national governments have been decentralised to local levels, either directly to schools, or to district administrations (one aspect of professional empowerment). These simultaneous but contradictory trends of central bureaucratic control and a deregulated educational market provide a backdrop to the changing nature of educational management. In response to widespread criticism of schooling in the press and by politicians (labelled the 'discourse of derision') both strategies of centralised control and decentralised professional empowerment have been promoted in an effort 'drive up standards' in order to compete more successfully in the global market. Some writers see the struggle between bureaucratic control and personal empowerment as part of the 'transition to postmodernity' (Hargreaves 1994).

The changes that are promoted can be seen as 'first order' relating to the core functions of schooling (learning, teaching, socialisation), or 'second order' changes in policy and infrastructure to support 'first order' changes (Leithwood, Jantzi, and Steinbach 1999). Some first and second order changes are identified in Table 1.

Essentially first order changes are concerned with teaching and learning whereas second order changes have more to do with leadership, policy and management. It is hard to show how second order changes bring about first order changes, if at all. Furthermore, the two groups of second order changes are difficult to achieve, complex and frequently at odds with each other. There is a fundamental tension between external accountability to the state bureaucracy or the 'hidden hand' of the market of new public management on the one hand, and the autonomy associated with professional empowerment on the other hand.

The lack of congruence between first and second order changes is clearly illustrated by the application of managerialist approaches to accountability and standards that have been introduced into the public sector from the business world. Some analysts see a radical change in the way education is perceived. They refer to the 'commodification' of education—turning learning into a measurable commodity that can be graded and measured. And with this commodification, the role of leadership becomes corporate, imitating the way a Chief Executive of a business enterprise uses profitability or 'value-added' to account for performance (Grace 1995). This concern for 'levering up standards' has led to a concentration on raising the scores of pupils on national standardised tests and examinations. The publication and comparison of school results in the form of league tables allows parents to choose the 'best schools' in a competitive consumer market of schooling. The consequence of this 'second order' change has been that teachers are diverted from the first order changes listed in Table 1. Instead, they are forced to focus on 'tactical learning' or teaching for the test instead of promoting the 'deep learning' of key skills in preparation for life-long learning. This clearly represents an unintended consequence of the attempt to raise standards. There is considerable concern that the rapid expansion of educational management activity (second order change) has become disconnected from the core purposes of schooling.

The transforming states of central Europe, particularly the candidate countries for EU accession, are driven by the imperative of matching the standards of education systems in the EU. Educational managers and policy makers in these countries will have to strike a balance between contrasting managerialist and progressive values that we have labelled 'new public management' and 'progressive humanistic leadership.' The former is associated with neo-liberal or 'new right' political ideology and neo-Taylorist managerialism whereas the latter is a continuation of post-

war welfare state consensus and progressive educational values that are in retreat in public policy, though not in the professional literature, in OECD countries in general. Each will now be examined in more detail.

New Public Management

In 1988, the British education system was radically redirected. The biggest Education Reform Act for 40 years introduced many fundamental changes that consolidated the managerialist approach and challenged the progressive values that prevailed in the 60s and 70s. The reforms of education were part of a major overhaul of all the public services that has come to be known as 'new public management.' Two aspects of managerialism-accountability to the central bureaucracy and accountability to the educational market-shifted power from school and local authority management. For example, a national curriculum and standardised national tests and examinations at ages 7, 11, 14 and 16 replaced the autonomy of each school to design its own curriculum. At the same time, local educational authority control of schools was largely replaced by delegated budgeting which gave each school the responsibility of fulfilling the aims of the prescribed national curriculum. Schools had to compete for students in an educational market place in which the 'consumers' (parents) chose between schools based on their performance in raising standards defined by test results. The results determined the place of the school in published 'League Tables' that took no account of the nature of the student intake in each school.

In addition, an apparently rigorous national system of school inspection was created that gives numerical grades to schools from 'excellent' to 'failing.' The grades are based on a process of aggregating the scores given to teachers whose lessons were observed three times during the one-week visit of a team of private inspectors subcontracted by the Office for Standards in Education (OFSTED). These inspections are based on standards set out in a handbook and a 40-page inspection report is produced for each school. A summary of the report is sent to all parents. OFSTED inspections have had a major impact on the life and work of schools but they remain controversial. Apart from the stress they have generated and the view that they distract teachers from working with pupils due to the heavy load of paper work, they have been severely criticised for their lack of reliability and validity. Fitz-Gibbon (1996) refers to the judgements of the inspectors as 'inaccurate guessing' about student progress in the absence of hard evidence. Since 1997, over 650 out of 25,000 schools in-

spected have been graded as 'failing' and placed under 'special measures' requiring drastic action referred to as a 'Fresh Start' which usually involves replacing the school leadership team. Alternatively, such schools can become 'City Academies' and be taken over by private firms. So also can local education authorities that are found to be 'failing' by the inspectors (Department for Education and Skills [DfES] 2001).

It is significant that a major consulting firm from the business world formulated the legislation on delegated budgeting, justifying the approach as follows (Coopers and Lybrand 1988):

Good management requires the identification of management units for which objectives can be set and resources allocated. The unit is then required to manage itself within those resources in a way which seeks to achieve the objectives. The performance of the unit is monitored and the unit is held to account for its performance and its use of funds. These concepts are just as applicable to the public sector as they are to the private sector.

This view of 'rational management', thought to be equally relevant to private and public sector management, follows in the tradition of the scientific management movement, management by objectives (MBO) or Taylorism. It assumes that human beings have to be driven to meet objectives and that they will only be efficient in their work if they are managed, controlled and supervised in ways that secure the required output for the organisation. The implementation of rational management has become subtler in recent years. As Bennett (1997) notes, in modern versions of scientific management, managers can direct and control through the construction of self-regulating organisational systems rather than direct supervision. In this way, the qualities of the learning organisation (see below) are brought into the service of rational management.

In a more traditional version of managerialism, Darling-Hammond (1995) describes the American state schools as 'hierarchical, factory model institutions where teachers, treated as semi-skilled assembly-line workers, process student for their slots in society.' New public management seems, for many commentators, a return to this productivity and output-based model of schooling in spite of the emphasis on diversification and specialist schools. Managerialism is the assumption that management is the solution to many organisational problems and that management is an end in itself, rather than a means to some greater

end (Oldroyd and Brzdak 2002). Grace (1995) describes 'the changing discourse of state schooling' in terms of a new vocabulary based on the school as a 'production-function centre.' In the new discourse, schools are now concerned with 'adding value' for 'customers' in an 'enterprise culture' in which the government and market forces encourage schools to find their 'market niche' and 'unique selling points.' The British government is aiming to have 1500 secondary schools designated as 'specialist schools' by 2006. It is also currently experimenting with value-added approaches to measurement of pupils and school improvement in 200 schools (DFES 2001). However, within new public management, the force of the market relationships (driven by customer power) is combined with the continuing regulatory power of educational bureaucracy. More power is accruing to the institutional level within the central control frameworks, hence the rise in importance of education management. Simkins (1999) identifies five consequences for school managers of the shift from bureaucratic to entrepreneurial management:

1. *Greater responsibility at school and college level* – stronger leadership in a tight team, chief executive role for the head, empowerment of senior managers.
2. *Cultural distancing* – between 'corporatist' managers and 'individualist' teaching staff.
3. *Structural change* – more managers in schools; delayering with more distance between organisational levels in further education.
4. *Middle management* – more clearly defined delegated powers within a tighter framework of accountability.
5. *Technicist approaches* – strategic and operational planning, 'harder' human resource management including staff appraisal and performance related pay.

The characteristics of new public management combining bureaucratic control with market forces in the education sector can be summarised as follows:

1. Explicit pre-specified standards and performance indicators for student learning, teacher and managerial performance.
2. Stress on inspection and use of published, measurable and standardised results in order to control outputs and provide evidence for 'consumer choice.'

3. Decentralisation of responsibility for budgeting, staffing, maintenance, etc. to districts or schools within a strong national policy and monitoring framework.
4. Introduction of competition between schools (quasi-market forces).
5. Increased influence of clients and stakeholders.
6. More autonomous and entrepreneurial (but also accountable) leadership at school level.
7. Emphasis on efficiency and productivity, value for money and doing more for less.

Many school leaders have welcomed certain aspects of new public management such as school-based management and control of budgets, but many are profoundly opposed to the imposed constraints of the national curriculum, standardised testing, league tables and heavy inspection. While the professional status of managers and their levels of pay have been enhanced, many speak of the deprofessionalising effects on teachers. The weight of these mandated reforms has limited their scope to be creative in meeting the many varied needs of their pupils. In addition, other features of new public management such as teacher appraisal, performance related pay and career ladders cause teachers to complain that they spend too much time 'collecting papers instead of teaching children.' Pupils no longer remain at the centre in the 'audit culture' of new public management with its prime focus on standards and measurable results. The new purpose of schooling seems to focus on published results in a limited number of subjects using narrowly defined 'performance indicators' that encourage 'tactical learning.' The consequence is that school headteachers (Fergusson 1994)

are becoming distinctive key actors in an essentially managerialist system pursuing objectives and methods that are increasingly centrally determined . . . and who must account for their achievement and ensure compliance of the teaching staff.

Progressive Humanistic Leadership for Democratic Accountability

Progressive humanistic leadership is the main counter-trend to what has just been described. It can be characterised as 'leading for learning' rather than 'leading for results.' It is primarily about professional empowerment and organisational learning, and is driven by values of community and democracy rather than measurable results and the imperatives of economic competitiveness. Leadership is the 'influence exerted to structure

activities and relationships in a group or organisation' (Leithwood et al. 1999). This is done by influencing the actions, beliefs and values of others in forming and implementing policy. This label for the second broad trend in educational management deliberately uses the term leadership as distinct from management. In new public management, the school director and management colleagues manage in the sense of mainly implementing the policies of others, for example, mandates from the state. In progressive humanistic leadership, school leaders assume greater responsibility for leading a learning organisation with a capacity for self-determination and continuous improvement. The term progressive implies that the interests of the 'whole child' or student are placed first and the purpose of schooling is not reduced to 'levering up results' on state mandated tests and examinations. In other words, schooling is about developing human potential, not simply about improving measurable test results. Its agenda is seen as humanistic, person and community-centred – developing 'resourceful humans' equipped, through lifelong learning, to face the postmodern world. This contrasts with the managerialist concept of 'human resources' in which people are seen as resources that must be developed to meet the needs of a productive and competitive economy.

Advances in neuro-science, cognitive psychology and pedagogy have provided new insights into child-centred learning, reinforcing constructivist approaches and offering a fuller appreciation of holistic learning (Smith 1998). In recent years, educational leadership development and school effectiveness research and improvement have increasingly focused on how the second order changes in school organisation and management relate to the core tasks of schooling, such as those set out in Table 1 (Weatherley 2000). The following quotation from Ranson (2000) is typical of the sometimes romantic progressive humanistic perspective that he terms 'a new education emerging for a new age':

During the past decade key research on learning has critically re-evaluated the dominant paradigm and proposed values and practices that amount to a new culture of learning. Education has traditionally been shaped by too narrow a conception of purpose, of human capacity, of frameworks of learning and of assessment. The central principles informing the new pedagogy of capability for active citizenship are:

- reconnect learning to living through preparation for active citizenship;

- enhance the capacity for participation and dialogue;
- understand all the needs of the learner, especially emotional well-being;
- promote active learning for developing responsible as well as reflective learners.

Learning for life (not tests), community, participation, reflection and dialogue are all aspects of the humanistic vision for schooling and leadership. They apply both to students and teachers and there is considerable congruence between the work of teachers and school leaders because of the central concern for learning. The focus on deep learning becomes the key to progressive leadership, not the preoccupation with tactical or surface learning that results from teaching to improve test results. It also distinguishes educational leadership from that of the business world.

The proponents of progressive humanistic leadership argue that education systems and institutions differ significantly from business organisations. This is because of the special purpose of schools in preparing critical citizens for democratic participation in community and society.

1. Developing a critical but constructive voice for its own sake (for self and citizenship).
2. Empowering a level of participation better than that needed for the 'best results.'
3. Helping the next adult generation search for and vocalise the means for a 'good society.'
4. Recognising that public institutions are about equity and justice not just profit and loss, economy and efficiency.
5. Ensuring that employees in those institutions are good role models for the young.

Child-centred progressive education has a long history and its principles are congruent with more recent organisational learning theory and practice associated with the 'learning organisation' or, to use a more recent term, 'professional learning communities.' Management is replaced in learning organisations by transformational leadership that empowers the staff to participate in decision-making and problem-solving and commits them to continuing self and school improvement. This is a form of leadership that is based on respect rather than power, just as progressive, child-centred teaching seeks to empower the child as an autonomous learner.

As an alternative to the factory metaphor of American schools quoted earlier, Darling-Hammond (1995) proposes schools as 'professional communities where student success is supported by the collaborative efforts of knowledgeable teachers who are organised to address the needs of diverse learners.' Such professional communities are based on trust and a willingness to collaborate in the quest for continuous improvement. Trust requires a high level of mutual predictability and shared aims and involves trusting both persons and processes. It allows staff to become 'critical friends' who are:

1. At a personal level-assertive and confident enough in relationships to give and receive constructive feedback.
2. In relation to processes-willing to engage in experiment, shared decision-making and creative problem-solving, networking, action research and continuing professional development.

The personal and the professional dimensions of trust need to be brought together in a professional learning community. The larger and more bureaucratic the organisation, the harder this is to achieve, which partly explains the frequently noted cultural differences between small primary schools and more factory-like secondary schools.

The most influential theorist of the learning organisation, Senge (1990), uses three archetypes of the leader of such professional learning communities:

- *Designer* – of structures and processes that contribute to a culture of continuous learning for all members of the organisation.
- *Steward* – of the self-respect and release of actualising potential of the staff; guardian of the shared vision of the organisation.
- *Teacher* – who helps the staff, through 'generative dialogue', to examine their mental maps of reality and to see the 'big picture' behind events and patterns of behaviour.

These functions need to be spread across all leaders in the organisation and system at all levels. Learning organisations are not divided into 'thinkers' (top management) and 'doers' (the workforce). All participants, especially in schools that are organisations staffed with professionals, should engage in a continuous process of thinking, doing, reviewing and reflecting that is facilitated by leaders at every level. In the classroom where the teacher is the leader, there are now many calls to promote key skills (communication, inter-personal relations, creative problem-solving, etc.) as part of the process of 'learning to learn.' This involves

helping learners to become more self-aware and able to use metacognition (thinking about their thinking) and metacommunication (communicating about their communication) as a preparation for life-long learning. These ambitions for the classroom closely parallel the ideals for the school as a whole. This view of the relation between the progressive teacher and learners is similar to that of the leader as designer, steward and teacher-the progressive humanistic leader. Both in the school and in the classroom, these conceptions of leadership are radically different from traditional teaching and educational management.

Progressive humanistic leadership is about leading first and second order changes within the school rather than being reformed through external mandates. Structural solutions to educational change such as new curricula and syllabi, new examinations, reorganised types of school are politically popular but are less enduring than cultural changes from within that are supported by the school's own community of local stakeholders, in particular, the teaching staff. School cultures are deeper and less transitory than the attempted interventions from the external structures of the state. Since the seventies there have been many examples of schools that have operated a collegial, team-based approach to creating what Joyce et al. (1999) call an 'inquiring workplace.' Teacher development is embedded in the workplace. Teachers work collaboratively in an information-rich environment, participate in decision-making, engage in action research, behave as 'critical friends' in giving and receiving feedback and are committed to continuous improvement. Leadership is diffused and empowering in order to create the conditions in which such a development culture can thrive.

Table 2 summarises the broad distinctions between the two models of educational leadership that emerge from the above discussion.

Discerning the Trends

Along the two roads of educational management or leadership mapped above, a number of more specific trends can be discerned.

PROFESSIONALISATION

Since the early eighties in the UK and earlier in the US, the creation of educational management as a distinct profession has proceeded very rapidly. In the mid-nineties EU educational development aid projects stimulated the transition countries of central and east Europe and the former Soviet Union to professionalise educational leadership. For ex-

Table 2: Two trends compared

| New Public Management 'Leading for results' | Progressive Humanistic Leadership 'Leading for learning' |
|---|---|
| <ul style="list-style-type: none"> • Manager with chief executive role • Transactional Leadership • 'Strong leader' • Mandated reform, politically driven • Top-down decision-making • 'Heavy' external inspection • National Curriculum • National Testing and League • Tables Focus on aggregated results • Staff development prescribed nationally • Performance related pay • Governance by the market • Audit culture of accountability • Managing human resources | <ul style="list-style-type: none"> • Leader with educative role • Transformational leadership • 'Diffused leadership' • Learning organisation, professionally led • Participative decision-making • School self-evaluation • School-based curriculum development • Teacher assessment of pupils • Caring holistically for individual pupils • School-based staff development • Developmental appraisal and mentoring • Self-governing schools • Collaborative development culture • Developing resourceful humans |

ample, Poland, following a series of major educational projects and reforms, has recently expanded the requirement for school leaders to acquire qualifications and engage in continuing professional development programmes. The technical professionalisation of education management will be complete when specific qualifications in educational management have to be obtained before the role can be assumed, which is now the case in several countries.

INTENSIFICATION AND STRESS

One reason for this extension of the 'diploma disease' is the intensification of the role of leadership. As more responsibilities are delegated, the tasks both widen and deepen, demanding a greater pool of knowledge, skills and resourcefulness than ever before. The consequence of this increased challenge has been to create difficulties in recruiting headteachers in some countries and much higher incidence of stress among school leaders. Hargreaves (1994) points to two types of guilt that professionals in school experience as a result of the mounting pressures from both within and outside the school:

- 'Persecutory guilt' – when it proves difficult to meet the incessant demands of accountability and imposed reform.
- 'Depressive guilt' – when one feels one is letting down one's own

teachers, pupils and family in failing to meet their aspirations due to the excessive burden of work.

MULTIPLE ROLES AND DIFFUSED LEADERSHIP

There are numerous menus outlined in the literature on educational leadership. Management is seen as a sub-set of leadership. Leithwood et al. (1999) describe six categories of educational leadership, each with a different focus:

1. *Instructional* – strong focus on pupil learning and development.
2. *Transformational* – focus on the commitment and capacities of the teachers and empowering them to share and reach organisational goals.
3. *Moral* – focus on their own values and ethics in relation to democracy, social justice.
4. *Participative* – focus on sharing decision-making with stakeholders in the face of ambiguity and a constantly changing environment.
5. *Managerial* – focus on functions, tasks and behaviours adopting a rationalist approach to supervision and control of inputs, processes and outputs.
6. *Contingent* – focus on responding to unique situations and solving problems that arise in a variety of ways.

This is a daunting list for any single leader to accomplish, which is one reason why diffused or distributed leadership is advocated in learning organisations. Maybe a third of all teachers in a school structured as collaborative, team-based, professional learning communities have a leadership role with other adults. Policy-making and responsibility for implementation and review are therefore widely shared in a learning organisation.

FOCUS ON CULTURAL CHANGE FROM WITHIN

A simple definition of culture is ‘the way we do things around here’ – the way members of a school talk, think, act and believe. It is strongly affected by the fluctuating ‘climate’ of inter-personal relationships that prevail on a daily basis. The new public management model of leadership fails to address culture and the unique qualities of every school. Organisational culture cannot be controlled. It can only be facilitated or encouraged in certain directions through example, policy and practice. Culture evolves and changes incrementally and is much influenced by the

history and 'organisational memory' of each school. Thus a school staff with a track record of failed innovation will probably take on further reforms reluctantly. Leaders have a choice of how they use their power and influence. They can exercise their power 'over, through or with' their colleagues. When 'power over' (controlling) is used, the person being led has the position of a sub-ordinate. When 'power with' (collaborating) is used, the so-called subordinate is empowered. Thus the way leaders use their power, influences rather than controls the direction in which a culture will evolve and the capacity for learning and dealing with new challenges.

INCREASING COMPLEXITY, AMBIGUITY AND DILEMMAS

School leaders are the gate-keepers between the school and the external administrative and social influences. They have to satisfy the ever-increasing and often contradictory demands of multiple stakeholders: government, parents, business and local community. As outlined above, three types of accountability (demands for quality) press in on the school:

- *Administrative accountability* – compliance with laws, regulations and mandatory reforms.
- *Market accountability* – ensuring that the school maintains its results and reputation in order to satisfy its 'customers' and to recruit sufficient students.
- *Democratic accountability* – responding to the specific needs of the parents and pupils, the local community and to the needs of the state for the next generation of democratic citizens.

These contrasting demands from the outside are accompanied by internal demands from staff and students. Together they add up to a major intensification of the work of educational leadership. When school leaders fulfil a bureaucratic role of carrying out orders from central administration, as in former times, their work is considerably less complicated. Now they are assailed by many dilemmas such as:

- encouraging reflection and critical practice while coping with the intensification of both their own and their teachers' work;
- influencing a caring school culture while 'levering up results';
- building a professional learning community while competing in the educational market place;
- caring for deviant pupils while protecting other pupils from them.

CONVERGENCE OF MANAGING AND TEACHING

There are strong parallels between how schools and classrooms are managed. ‘Leading for results’ and the pressures of new public management send strong messages about how teachers might relate to their pupils. So does ‘leading for learning’ with its person-centred, holistic values. The author’s recent experience of the contrasting effects of the two roads in schools in England and Sweden is illuminating. In the English school the senior staff allocated a large amount of teachers’ time to providing extra coaching to students whose grades in the external examination for 16-year olds might be raised from ‘D’ to ‘C.’ The position of the school in the League Tables depends on the proportion of pupils gaining 5 grade ‘C’s or more. In the Swedish school, art, music and drama were used across the whole curriculum to maintain a ‘lust for learning’ through the adolescent years. In the eighth year (15-year-olds) a year-long project involved all the students in researching, writing, producing and performing a musical drama or comedy that was presented to the local community – a ‘real-life’ challenge full of deep learning experiences. The Swedish school leaders were driven by a vision of empowering their pupils and the teaching and non-teaching staff. Both pupils and adults collaborated in work teams in a highly active and participative way.

A professional learning community not only ‘manages’ (gets results) it also learns. Figure 1 suggests how a rational management cycle of results can be combined with a cycle of learning. This simple model might point the way to a reconciliation of the two roads we have been considering.

External feedback and comparison with other schools can enrich both cycles. The school in England was inspected and graded by OFSTED, including in its report more ‘measured results’ for lessons observed. The Swedish school chose to engage consultants to promote ‘evaluation

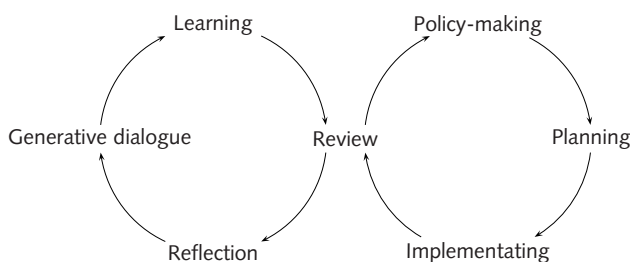


Figure 1: Leading for Learning and Results

through dialogue' that included feedback to the work teams of an analysis of letters to the evaluators written by teachers and pupils to reveal the deeper realities of the school culture (for a fuller account see Oldroyd and Hogberg 2002).

MANY PERSPECTIVES ON EDUCATIONAL LEADERSHIP

The rise of educational management as a profession has been seen through different academic perspectives. Positivistic scientific management and phenomenological humanistic perspectives underlie what has already been presented in the above analysis. To these one can add, for example, the perspectives of critical theory that portrays educational management as serving the interests of the corporate state, and feminism that presents the case that educational management is still patriarchal, hierarchical, masculine and gender-blind. Techno-rational, phenomenological and critical perspectives each have their own extensive and accelerating literatures that lie well beyond the reach of most practitioners and even most academics as well as this paper!

The Challenge of Educational Leadership: Travelling Two Roads

Dealing with dilemmas is the stuff of educational leadership. Current school traditions and structures arose from the 19th and early 20th century models of mass production that aimed to produce workers with basic skills to enter a largely predictable industrial world. These structures are not designed to 'help teachers work together more effectively in collaborative cultures of positive risk and continuous improvement' (Hargreaves 1994). Nor are the imposed requirements of new public management for levering up standards conducive to organisational learning or the deeper and broader purposes of 21st century education. Nevertheless, the desire for politicians to direct and control education systems will persist. In central Europe the full professionalisation and provision of truly professional salaries and conditions of employment will be a long time in coming. Even in the relatively affluent western nations educational leaders find it hard to reconcile the contradictory directions of the two roads – 'leading for results' and 'leading for learning.' Progressive humanistic leadership in professional learning communities remains an ideal arising from theory, research and practice that is desirable but not always feasible to implement within current political and social contexts. Nevertheless, it is imperative that the community of academics and leadership devel-

opers keep these ideals alive, as leaders at every level of education tread the road of transition.

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Creating a Culture of Innovation in Canadian Schools

David C. Dibbon

Since its inception in 1996, the GrassRoots Program has been instrumental in facilitating the integration of information and communication technologies (ICT) into the classrooms of Canadian schools. By linking the GrassRoots Program to the school curriculum and providing incentives for teachers to engage students in the process of co-creating electronic curriculum resources for the Internet, it has been influential in transforming classrooms into authentic centres of learning. There is overwhelming evidence supporting the concept that the GrassRoots Program is a powerful connector between ICT and new teaching theories.

This paper provides an overview of innovation, a background to some of the challenges associated with large-scale innovation in the Canadian K-12 school system and the findings from a collection of 16 case studies conducted in innovative schools in Canada. An analysis of the data contained in the case studies indicates that the GrassRoots Program is having a positive impact on the diffusion of ICT in the classrooms of schools that are members of the Network of Innovative Schools (NIS), and it is making a significant contribution to the development of a culture of innovation. The existence of GrassRoots projects has also increased the capacity for innovation by empowering and enabling the schools and teachers to work on multiple innovations simultaneously. Also, there is sufficient evidence to show that GrassRoots has had a major impact on: teacher professional learning; teacher technology skill development; student technology skill development, student employability skill development; access to teaching resources; leadership opportunities; and school growth and development.

Introduction

In 1996 Industry Canada's SchoolNet launched an innovative program to stimulate, among other things, the integration of information and communication technologies (ICT) into the classrooms of the nation. The GrassRoots Program¹ offers funding to schools for the creation of innovative, Internet-based, collaborative and interactive electronic learn-

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ing projects. To qualify for funding these projects must be relevant to the school curriculum and lead to the creation of Canadian content, designed and implemented by teachers and students, and published on the Internet. They must also foster the acquisition of academic, employability and technology skills in Canadian youth, by integrating information and communication technologies into learning activities, and facilitate increased connectivity and training opportunities.

In 1998 Industry Canada's SchoolNet, in partnership with the Canadian Association of School Administrators (CASA), launched a pilot project, the SchoolNet Network of Innovative Schools² (NIS). The objective of this program is to identify innovative schools in the K-12 system that are successfully integrating ICT into the curriculum. The purpose of the Network is, among other things, to establish a 'network of schools' that are capable of learning from one another and mentoring other schools in online learning communities. To date, over 100 schools have been selected to be part of this Network and they have been provided with a modest financial grant (\$10,000 per year for three years) to facilitate their innovation plans.

Purpose

Based on a more extensive study reported elsewhere (Dibbon 2002), this paper will illustrate how the GrassRoots Program functions in NIS schools and provide evidence to show that GrassRoots projects stimulate learning and innovation in these schools. Specifically, this paper will:

- demonstrate how the Grassroots Program facilitates the movement of innovative educational practices beyond isolated pockets of excellence to reach a much greater proportion of students and educators;
- identify how educators in innovative schools use GrassRoots projects to prepare students for learning so that they are capable of acquiring pertinent new skills and knowledge throughout their lifetime;
- identify how the GrassRoots Program has made a significant contribution to innovation in the selected schools.

Methodology

The study summarized in this paper followed a case study design. Stake (2000) identifies three types of case studies. First, there are 'intrinsic case

studies', studies undertaken because the researcher wants a better understanding of one particular case. Second, there are 'instrumental case studies', where a particular case study is examined mainly to provide insight into an issue or to redraw a generalization; the case is of secondary interest. Third, when there is less intrinsic interest in one case a researcher may jointly study a number of cases in order to investigate a phenomenon, population or general condition. This type of case study is referred to as a 'collective case study' and it is really an instrumental study extended to many cases. This study followed the 'collective case study' methodology.

A representative sample of 16 NIS schools representing each of the Canadian provinces and territories, elementary and secondary schools, from urban and rural communities was selected, in consultation with GrassRoots officials responsible for overseeing the GrassRoots Program. Interview questions were developed and field-tested, and minor adjustments were made to the wording of some questions. Telephone interviews were then conducted with administrators ($n=16$) in each of the schools and at least two teachers who were involved in GrassRoots projects ($n=34$). The interviews were recorded and then analyzed using the constant comparative method.

Background

INNOVATION AND THE EDUCATION SYSTEM

As a result of a fast-changing global economy, Canadian schools and school districts are facing increasingly turbulent times (Dibbon 1999; Rait 1996; Stoll and Fink 1996; Leithwood and Aitken 1995; Prestine 1994; Leithwood, Janzi, and Steinback 2000). Changes in our economic environment brought on by globalization, government restructuring, and the rapid growth and expansion in information and communication technologies has made it necessary for Canadian schools to be innovative in their approach to preparing students for success in this new economy (Canadian Federal Government 1995, and 2001; Conference Board of Canada 2001a; Conference Board of Canada 2001b; Laferriere 2001; OECD 1993). Not since the waning of the 19th century when North American educators had to deal with rapid growth due to immigration and the arrival of the industrial revolution (Campbell, 1987; Bolman and Heller, 1996), has the teaching profession had to cope with such broad-based, societal change. Today, we are in the information age and much of the change and innovation in schools is focused on the successful integration

of information and communication technologies into the learning environment. While there have been many examples of individual schools that have been innovative in their use of ICT to enhance teaching and learning, the challenge for system-wide innovation remains.

The standard definition of innovation is ‘the adoption of an existing idea, practice or object that is perceived as new by an individual or other unit of adoption’ (Rogers 1995). In this definition, whether or not an idea is objectively new as measured by the lapse of time since its invention is of little concern. The perceived newness of the idea for the individual, group or organization determines the reaction to it. If the idea seems new to the individual or group then it is an innovation (Rogers 1995). In the academic literature, there is a clear distinction made between innovation and invention – the adoption of a new idea as opposed to the creation of a new idea. However, in this era of rapid change, the line between the two appears to have blurred, and innovative organizations are both inventing and adopting new practices. As a result, in today’s world innovation has come to refer to both (Borins 2002).

In recent times, innovation has become a topic of great interest to leaders in both the public and private sectors. In the private sector, the rapid development of new technologies has provided opportunities for firms to launch new products, transform their production processes, and do business in new ways. For many industries, innovation is necessary in order to ensure economic competitiveness and sustainability. While public sector organizations (including the education sector) have traditionally been shielded from the pressures of their private sector counterparts, no longer can they claim to be exempt from the pressures of global competitiveness.

Innovation in education has never been an easy task, primarily because of the conservative nature of our public education system (Levin 2001). While the past half-century has been marked with numerous attempts to innovate and reform our system, in terms of the impact on teaching and learning, most of these efforts have failed miserably (Fullan 1995; Levin 2001). While many of these initiatives (e. g., the human relations movement of the 1940s and 1950s, the curriculum reform movement of the 1960s, the implementation studies in the 1970s, the effective schools movement in the 1980s, and the restructuring initiatives in the 1990s) delivered short-term solutions, they provided no panacea. From an innovation adoption perspective, by the 1980s we knew a fair amount

about the factors associated with introducing a single innovation but from a societal point of view it was too little too late (Fullan 1995).

During the 1990s, the pace of change accelerated and it was no longer sufficient to deal with innovations one at a time. The ante had been upped (Fullan 1995) and as the country prepared to move from a traditional resource-based economy to a newer knowledge-based economy there were numerous calls from both government and business for innovation and change to our education system, to ensure that the next generation of Canadians to graduate from the nation's schools would be equipped with the skills and knowledge required for success in this new economy. For example, an 1993 OECD Report stated (OECD 1993, 9):

Only a well-trained and highly adaptable labour force can provide the capacity to adjust to structural changes and seize new employment opportunities created by technological progress. Achieving this will in many cases entail a re-examination, perhaps radical, of the economic treatment of human resources and education.

The Council of Ministers of Education (CMEC), a creation of the provincial governments that has no formal power over any of the provinces but does play a co-ordinating role with respect to educational policy changes, was also quick to identify the need for changes to our education system. In *Joint Declaration: Future Directions for The Council of Ministers of Education, Canada* (1993) the chairman noted:

We are well aware of the challenges to the education systems posed by our rapidly changing world: globalization of the economy, openness with regard to other cultures, pressing needs for skilled labour, and technological advances that are having an impact on our daily lives as well as the job market. These changes require constant adjustments to our educational practices to ensure high quality, accessibility, mobility, and accountability.

The *Third Annual Innovation Report* by the Conference Board of Canada (2001a) claims that innovation is one of the most important means to improve competitiveness, generate wealth, create jobs, and sustain our high quality of life. As such, creating a fertile environment for innovation is the responsibility of government, business, investors, the financial community, academics and individual Canadians. In *Knowledge*

Matters: Canada's Innovation Strategy (2001) the Government of Canada recognizes that there will be an ever-increasing demand for a well educated and skilled workforce in all parts of the economy and in all areas of the country. The report continues by saying, to accomplish these goals 'our learning system must be strengthened' (Canadian Federal Government 2001, 2). In the Social Studies and Humanities Research Council's (2001) (SSHRC) recent call for proposals on Initiatives for the New Economy (INE Grants) it claims education is a key factor in equipping young Canadians with the knowledge and skills to succeed in a new economy. Clearly, encouraging innovation in the nation's schools to ensure that students develop the skills required for success in the new economy is of national importance and stakeholders have placed high priority on achieving this goal.

During the 1990s policy makers recognized that one of the primary functions of education in our society has been one of cultural cohesion and stability – aimed at perpetuating cultural values, knowledge, standards, and practices. In essence, for many years the system was more concerned with preserving the status quo than it was with innovation and change. These same policy makers also rediscovered that education could be a powerful and essential instrument of innovation and social change. In fact, one could argue that a central motive behind many current educational reform initiatives is the belief that education has a critical role to play in strengthening the country's capacity to meet the challenges of the future. Education is now so important that governments and industry are major players and education is seen as too important to be left solely to the judgment of educators.

There have been many responses to the call for innovation but as the experiences of the 1970s, 1980s and 1990s have shown, the integration of a new idea into general practice is often very difficult. Even innovations with obvious advantages require a lengthy period, often many years, before they are widely adopted. Although educators have implemented many innovations over the past two decades it is apparent that widespread acceptance is problematic. Many educators claim that taking an innovation to 'scale' (Elmore 1995) or speeding the 'diffusion time' (Rogers 1995) is extremely difficult due primarily to what Fullan and Steilgerbauer (1991) calls 'the school's incapacity for change.'

Recognizing this difficulty in taking an innovation to scale, Industry Canada's SchoolNet has developed a number of programs designed to accelerate the uptake of ICT innovation throughout the Canadian K-12

school system. This paper examines the impact that the GrassRoots Program has had on innovation in a Network of Innovative Schools and identifies how the GrassRoots Program has contributed to nurturing a culture of innovation within these schools.

GRASSROOTS: THE DIFFUSION OF AN INNOVATION

How can we ensure that good educational practices that impact positively on teaching and learning, like the Grassroots Program, move beyond isolated pockets of excellence to reach a much greater proportion of students and educators? The problem of *scale* is not a problem of the general resistance or failure of schools to change. In fact, most schools are constantly changing – adopting new curricula, new assessments, new schedules, changing decision-making mechanisms and sundry other modifications (Elmore 1995; Fullan 1995). However, when it comes to changing the *technology of schooling*, replicating this success on a larger scale has proven to be a challenge. Technology of schooling refers to the knowledge of the craft of teaching and learning that teachers need to possess so that currently modern thinking about education is manifested in teaching and learning processes.

The GrassRoots Program is aimed at encouraging teachers to move beyond traditional ways of teaching to incorporating more innovative approaches to teaching and learning in their day-to-day work. Generally these innovative approaches are new teaching strategies that acknowledge a general shift in thinking about education, a shift that advocates moving away from:

- a teacher-centred classroom to a learning-centred classroom,
- a system that relies on single sense stimulation to a system that enables multiple intelligences,
- a single media environment to a multimedia environment,
- isolated work to collaborative work,
- isolated artificial content to authentic real world experiences, and
- information delivery to information exchange.

The GrassRoots Program provides for a powerful connection between ICT and new educational theories about teaching, and learning (e.g., constructivist learning theories, project-based learning, and multiple intelligences). Making the connection between these theories and the integration of ICT is essential to the successful introduction of new teaching strategies involving the integration of ICT into the classroom.

To facilitate the diffusion of new ideas about teaching and the use of ICT across the curriculum (GrassRoots Program), it is important to have a strong external standard for innovative teaching practice. In this instance, the external standards (developed externally to the school) can be represented as the criteria that individual teachers use to guide their project development. The external standard is important because it institutionalizes the idea that professionals are responsible for looking outward at challenging conceptions of practice, in addition to looking inward at their values and competencies (Elmore 1995). By developing advanced forms of collaborative and interactive electronic learning projects and making them available to teachers on the Internet, a standard for practice is being set, and the online database of projects provides an informal way of communicating norms of good practice to others. The important thing about these norms is that they inform teachers' ideas about practice and they carry with them a high degree of professional authority.

In the past, and to a large extent today, educators tended to be somewhat naive about how to ensure the large-scale diffusion of an innovative idea. Given what we know about the conditions under which teachers work (Bluestein 2001; Elmore 1995; Fullan 1995) and the generally weak incentives that exist for teachers to embrace ideas that are generated external to the school and classroom, this is not surprising. Just presenting the idea and assuming that because it is a good idea others will adopt it, does not work. Changing teaching practice, even for the most dedicated and committed teachers, can be a slow and arduous process and teachers have to feel there is some compelling reason for them to alter their practice. The GrassRoots Program's linkage to curricular change and financial incentives for teachers to engage students in co-creating electronic curriculum resources for the Internet, and thereby providing a process that allows for the reproduction of classroom successes, has been influential in transforming some classrooms into authentic centres of learning.

An analysis of the data contained in the case studies upon which this paper is based, as well as earlier studies completed by Laferriere (2001) and the Conference Board of Canada (2001b), indicates that the GrassRoots Program is having a positive influence on the diffusion of ICT in the classrooms of schools that are members of the NIS and making a significant contribution to the development of a culture of innovation in the schools.

Findings and Analysis

ASSESSING INNOVATIVE CAPACITY

There are at least three stages in the adoption of any new technology (Chapman 1996). The first stage is the reproduction stage – a stage where the primary concern is with using the new technology to do ‘old things in new ways.’ Using PowerPoint to replace overheads is a classic example. Until now, much of the use of technology in schools has been largely concerned with the reproduction of current pedagogical practices. In stage two, the newly available technology leads to new ways of teaching and learning, and supporting the administration of education (Chapman 1996). Getting to stage two is easier and the innovation is more significant if people (teachers) are able to work collaboratively as members of interactive networks. The creation of a professional network (e. g., NIS) to support the practices of teachers who are in the process of changing or modernizing their teaching practices, has provided leverage for change in the way some teachers approach their work. There is considerable evidence from the case profiles prepared for this study that NIS schools are working comfortably at this level of adoption.

The final application of technology (stage three) is the transformation of education or the movement from traditional types of schools to open model schools (Stevens 1999; Stevens and Moffatt s. d.). The open model school is based on the premise that schools integrate with one another for at least part of a school day. The open model of the school is also grounded in the application of information and communication technologies to teaching and learning and the construction of networked classes for the purpose of facilitating the creation, transfer, utilization and documentation of knowledge. As innovative schools become more innovative, they will be well positioned to lead this transformation.

Changes of this magnitude cannot occur unless there are committed groups of teachers and administrators who see the urgency for this transition and are willing to champion the initiative. Earl and Lee (1998) in their work on school improvement in Manitoba observed a pattern of activity that they have characterized as ‘a cycle of urgency, energy, agency and more energy.’ Something stimulates a group of educators to feel a sense of urgency about changing the way they do business. The urgency is experienced as a surge of energy that results in either productive action or dysfunctional behaviour. When the conditions are right, for example when a school receives the support of GrassRoots or the NIS, these bursts

of energy lead to an upward spiral with an increased sense of agency and productivity. This support, in time, releases more energy and the cycle continues. When support is withdrawn there is a greater chance that the energy will spiral downward resulting in anger and disillusionment, and a previously innovative school risks losing its innovative status. The schools in this study have realized a sense of urgency about making changes to the pedagogical process and the support provided by GrassRoots and NIS has been instrumental in producing an upward spiral of energy with an increased sense of agency.

Finally, there is ample evidence that the GrassRoots Program has contributed to an increased capacity to integrate technology into the teaching and learning environment in these innovative schools. There are many instances where technology integration began with a single teacher and a single GrassRoots project but with the leadership and coaching provided by GrassRoots teachers and co-ordinators, the GrassRoots Program in these schools has grown and is continuing to grow. For example, in many of these schools teachers are working on more than one project and in many schools up to 50% of the teachers have experience working with GrassRoots. Also, some of the projects are very sophisticated and involve multiple teachers and multiple classes of students, and in some schools all students are involved.

The existence of GrassRoots projects in these innovative schools (NIS) has increased the capacity for innovation by empowering and enabling the schools and teachers to work on multiple innovations simultaneously. As we make the transition to a knowledge-based society, these programmes provide the necessary support and encouragement that is required for these schools and teachers to be innovative in their use of technology for teaching and learning.

HOW GRASSROOTS HAS INFLUENCED INNOVATION

The GrassRoots Program has had a positive impact on the ability of NIS Schools to be innovative in their approach to the use of ICT. Based on the case studies reported in this study, the leverage from the GrassRoots Program lies in an increased capacity for: teacher professional learning; teacher technology skill development; student technology skill development; student employability skill development; access to teaching resources; leadership opportunities; and school growth and development.

1. Teacher Professional Learning. Clearly, the GrassRoots Program is an innovative programme that is stimulating professional learning oppor-

tunities for educators in innovative schools. In fact, in some schools there is evidence that a professional learning community (Laferriere 2002; Du-Four and Eaker 1998) is developing. In a professional learning community educators acknowledge that the traditional guiding model of education is no longer relevant in our knowledge-based society and they embrace ideas that are somewhat different to those that have guided schools in the past. As one of the teachers in a K-12 school claimed, 'The amount of collaborative learning taking place between students and teachers has surpassed what could ordinarily be accomplished through traditional teaching and learning strategies.' The GrassRoots Program provides strong incentives for teachers to re-think their traditional approaches to teaching and their delivery of the curriculum. The learning resources teacher in a large urban high school claims that, 'teachers are empowered to abandon traditional ways of teaching in favour of more innovative approaches and this has stimulated many of them to evaluate their own philosophies and practices in teaching.' Participants from each of the schools confirmed that teachers who were engaged in the GrassRoots Program were more inclined to adopt innovative teaching methodologies (e. g., project-based learning) and integrate them into their day-to-day teaching.

2. Teacher Technology Skill Development. Not surprisingly, when teachers and students were engaged in GrassRoots projects they increased their capacity to successfully utilize ICT. The technology teacher at a mid-size urban high school explained how his school developed and maintains an up-to-date Technical Skills Inventory. 'It's simple really – a checklist of skills ranging from the simple to the more complex, that provides a guideline to the skills that teachers and students need to know before they tackle specific projects.' All teachers and administrators reported that as a result of their involvement in GrassRoots projects, teachers were more confident in their use of ICT in the classroom. For example, teachers indicated that the GrassRoots experience motivated them to learn website construction skills, how to use digital cameras, how to do multimedia presentations and how to organize students to work in project teams.

3. Student Technology Skill Development. Reports indicated that students were enthusiastic about learning and applying ICT to their schoolwork. Teachers spoke convincingly of how GrassRoots projects provided opportunities for students to improve their technical skills (e. g., website

construction, email, digital photography, multimedia productions, and robotics) through working with other students and teachers on authentic learning problems. In an urban elementary school the learning resources teacher spoke confidently about how technology was integrated into all grade levels, with the exception of the kindergarten children. 'Every student has his/her own website. This initiative starts in Grade One when the children learn how to set up their site and post artwork and stories. It continues to each subsequent grade level so that a portfolio of work traces their progress up to Grade Six.'

4. Student Employability Skills Development. There is sufficient evidence that the skills students are acquiring through the project-based approach to learning being practiced by teachers who participate in GrassRoots projects are the types of skills that are outlined in the Employability Skills Index developed by the Conference Board of Canada³ (2000). The acquisition of employability skills is critical if students are to be prepared for success in the 21st century economy. In these innovative schools, students and teachers work seamlessly with technology (often in the form of GrassRoots projects) to help develop ICT and other fundamental, collaborative and personal management skills that are critical for success in a modern workplace. This project-based approach towards teaching and learning gets students involved in their own learning and provides opportunities for teachers and students to solve problems as members of collaborative teams. While some schools are able to involve all teachers and students in this process, there are still many challenges to meet before this type of teaching and learning is accepted and adopted in all schools. While there is clear evidence that there is a synergy between NIS and GrassRoots, there remain some challenges to accelerating the rate of diffusion of innovative practices within and between schools and districts.

5. Access to Resources. Innovative teachers need classrooms that are well equipped with the latest technology, as well as access to training in the appropriate uses of the technology. There is unanimous consent that the financial awards accompanying selection to the NIS, and the successful completion of GrassRoots projects, provides teachers and students with increased access to new and modern technology. These awards also stimulate professional learning among teachers. In the vast majority of cases, the teachers involved in these projects have control over how to spend the money and many use it to support their own professional develop-

ment. Invariably these teachers also invest in new tools for their classroom and this in turn provides intrinsic motivation to learn how to use them and appropriately integrate them into their classroom teaching. In a school system that is for the most part under-funded, these financial awards provide classroom teachers with a degree of autonomy and independence in decision-making not available with other programmes. A science teacher in one of the city schools claimed that the resources he accessed through the GrassRoots Program were instrumental to him receiving national and international recognition for his work.

I learned a long time ago that the school didn't have the kind of money I needed in order to grow my program. To me Grassroots was a real blessing; over the past 5 years my colleagues and I have been able to access over \$40,000 to modernize our classrooms. Today I have an electronic classroom that includes a half dozen computer workstations, a digital camera, digital microscopes, a SMART board, an LCD projection unit and a laptop computer. My students and I use the technology in all of my classes and we've been able to do some interesting work – work that has resulted in me being recognized with national and international awards for teaching. Grassroots has been good to the school and to me personally.

6. Leadership Opportunities. To serve the purpose of innovation, an approach to leadership must be comprehensive; that means it must extend beyond the reaches of the people who occupy formal leadership positions. While it is acknowledged that people who occupy formal positions of authority do play a critical role in the operation of schools (see for example, Leithwood et al. 2000; Fullan 2001), in innovative schools there is evidence that leadership is 'distributed' (Leithwood et al. 2000; Ryan 1999) and that formal leaders empower their teachers to take action, to be creative, and to be innovative. Embracing a distributed approach towards leadership and empowering teachers to be innovative in their teaching (for example, participation in GrassRoots projects) is one of the reasons these schools achieve an innovative status.

The GrassRoots Program provides many opportunities for classroom teachers to develop and refine their leadership skills. When not working with their students these teachers are usually '... coaching or mentoring other teachers on some aspect of how to be an innovative teacher – whether it is integrating ICT into their teaching, completing a GrassRoots

application or learning how to use a project-based approach in teaching and learning', notes a principal of a small rural high school. This teacher-leadership leads to an increase in the capacity of the school to be innovative in its approach to teaching and learning. While the formal leaders (i. e. administrators) provide support for teachers so that they have the time and resources to do the necessary work that goes into the planning, development and implementation of GrassRoots and other innovative programmes, the real leaders in the integration of ICT are the knowledgeable, skilled and committed teachers who are willing to challenge traditional models of teaching.

7. School Growth and Development. The collaborative nature of the GrassRoots Program has influenced the increased level of collaboration between teachers, schools and other community agencies. Participants provided evidence of teacher collaboration on GrassRoots projects, both within schools as well as between sites. A principal from a large urban elementary school summed up the thinking of many participants when she said, 'connecting with schools in other provinces has provided learning opportunities for both teachers and students that would not otherwise exist.'

There is also evidence that the GrassRoots Program has enhanced the ability of these schools, from a knowledge and process perspective, to work with community partners on the development of ICT projects. Many of the schools developed community and industry partnerships in their attempt to find the necessary resources to develop their technology enabled learning environment. The experience of creating, maintaining and nurturing these relationships provided students and teachers with both new skills and a new understanding of the importance of a strong relationship between industry, the community and the school.

Conclusion

At this point in our history, innovation and the adoption of ICT in the nation's schools are essential if we are to meet the challenges posed by our rapidly changing society. Challenges such as globalization of the economy, pressing needs for skilled labour and technological advances are having an impact on our personal lives as well as our professional lives. Meeting these challenges requires educators to be innovative in their thinking about how to improve educational practices so they can better prepare their students for a successful transition to the global economy. There is no doubt that programmes like GrassRoots are providing the

necessary support and encouragement required for schools and teachers to be innovative in their use of technology for teaching and learning as they prepare students to take their place in the knowledge-based society.

From an innovation adoption perspective a solid foundation has been laid, and the GrassRoots Program has provided a strong connection between ICT and new teaching theories. As a result it is having a positive impact on the use and adoption of ICT by teachers and students in select Canadian schools and classrooms. And while some schools have transformed themselves into professional learning communities where educators are embracing innovative approaches towards teaching and learning, there is still much work to be done before these innovative approaches to education become systemic.

The paradox of innovation is that things continue to change and even successful programmes are in need of constant evaluation and updating – indeed that is the very reason that they are successful. The GrassRoots Program is no different. Industry Canada, the federal government department that provides the major institutional support for the GrassRoots Program, is currently considering changes to the programme design that would enable it to continue to work with schools that are on the leading edge of innovative practice as well as continue to create a culture of innovation in schools that find innovation a challenge.

So what should this new programme look like? Clearly, any new programme needs to move towards an innovative model that promotes and stimulates the development of schools and school districts as professional learning communities where people continue to push for systemic change. Three ideas that should be considered are: the development of ‘innovative school districts’, the development and use of ‘learning object repositories’, and the development and use of ‘online learning tools and programmes.’

An innovative school district (ISD) would possess a vision of the future that involves the use of ICT as a resource in developing new and innovative ways to structure the education system and provide equitable access to educational services for all students and teachers in the district. An ISD would exemplify the characteristics of a professional learning community as outlined by DuFour and Eaker (1998) and Laferriere (2002).

Over the years, participants in GrassRoots have developed a wide variety of good quality, online K-12 content and curriculum resources. These resources must now be meta-tagged (Downes 2002) and organized as learning objects (Downes 2002) in a content repository that would pro-

vide a rich library of resources for teachers and students in every school in the country. Rather than continuing solely with the production of larger units of curriculum, the new focus could be on the development and production of small modules of content and learning resources with appropriately tagged learning objects. Learning objects are digital resources that can be used and reused to support learning. They are usually small chunks of information that are self-contained but can be aggregated with other learning objects to complete a learning unit or module. This knowledge building process is also characteristic of sophisticated professional learning communities.

Also, to promote online collaboration and participation in online knowledge building communities (DuFour and Eaker 1998; Laferriere 2002), the use of specific online learning tools and programmes should be promoted. Online learning tools and programmes are often based on constructivist learning theory which promotes the idea that learners learn best when they are involved in the creation of their own learning experiences. The uses of online learning tools and programmes are especially appropriate for helping students to learn academic, teamwork and personal development skills highlighted by the Conference Board of Canada in their Employability Skills Index.

The GrassRoots Program has met with tremendous success, primarily because it has been legitimated in an environment external to the school, is recognized as having a positive impact on pedagogy, is intrinsically motivating to teachers and students, and provides educators with extrinsic rewards for participation. Any new programme should build on these features.

The GrassRoots Program has been a powerful influence on innovation within the Canadian K-12 school system. There is every reason to believe that the *scale-up* process will continue and a sound educational practice will move beyond isolated pockets of excellence to transcend every school and every classroom in the country.

Notes

1. Readers interested in learning more about the GrassRoots Program are referred to Canada's SchoolNet GrassRoots website (<http://www.schoolnet.ca/grassroots/>).
2. Readers interested in learning more about the GrassRoots Program are referred to Canada's SchoolNet NIS website (<http://www.schoolnet.ca/nis-rei/>).
3. The Conference Board of Canada has identified (1) fundamental skills

such as the ability to communicate effectively, manage information, use numbers and think and solve problems; (2) personal management skills such as demonstrating positive attitudes and behaviours, taking responsibility, being adaptable, lifelong learning skills and workplace safety, and; (3) teamwork skills such as the ability to work well with others and to participate in tasks and projects. For more details please consult the Conference Board of Canada's Employability Skills Index 2000+ (<http://www.conferenceboard.ca/education/>).

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Managing Global Training Utilizing Distance Learning Technologies and Techniques: The United States Army Readiness Training

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Distance learning (e-learning) is expanding at a very rapid pace as organizations throughout the world search for economical, responsive, and effective means to train workers to meet the challenges of the information age workplace. The Army Distance Learning Program (TADLP) model is discussed in the context of the global e-learning environment. Both e-learning infrastructure and management issues are identified, with emphasis on: (1) developing policy, (2) measuring performance, (3) managing resources, (4) maintaining standards, and (5) satisfying users. The TADLP program is challenging to manage effectively, and difficult to accurately assess program outcomes.

The TADLP program is shown to have a well-executed infrastructure plan, quality management of both facilities and services by contractor-supplied staff, and well-designed classrooms. However, the program suffers from limited courseware, creating a bottleneck for full program utilization. A discussion follows relating the Army program to public and private e-learning programs and expectations.

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Introduction

The US Army shows many similarities to a large multinational business enterprise: locations throughout the world, a workforce that requires ongoing training, finite budgets, and constantly changing training requirements. The Army has put in place a number of different training programs to address these needs. The program we will examine is The Army Distance Learning Program (TADLP), a computer and telecommunications technology-driven initiative to bring training to the soldier. The program is available to personnel in the active Army, the Army Reserve, the Army National Guard, and Department of the Army civilian employees. The mission statement for the program is 'Delivery of standardized individual, collective, and self development training for soldiers and units anywhere and anytime through the application of information technologies.' According to Army Chief of Staff General Eric C. Shinseki, 'The Army Distance Learning Program is a technological enabler that supports the Army vision-people, readiness, and transformation-by expanding training opportunities and providing leaders a greater flexibility in developing soldiers and growing leaders' (TADLP 2002).

While there may be differences in overall mission, there are numerous similarities in meeting the training requirements for individuals within the TADLP program and other private and public distance learning programs. Learning content will be unique for each application, therefore the focus of this study will be on the management and delivery of training, especially as it relates to infrastructure and computer and telecommunications technology. Before discussing the TADLP program specifics, it would be useful to review some of the basics of distance learning, often referred to as e-learning when used in the corporate context.

Distance Learning (E-Learning) Overview

The Internet is perhaps the most transforming technology in history, reshaping business, media, entertainment, and society in astonishing ways, and is bringing us closer to making learning of all kinds a practical reality for everyone. While there has been much publicity about innovative programs, it is important to understand that Internet-supported distance learning is not without pitfalls. Experts are divided over the question of the learning effectiveness of e-learning programs versus face-to-face classroom programs; however, there is growing evidence that e-learning is an effective means for learning in most applications (Kearsley 1998). Also, there are a number of fundamental policy and general infrastruc-

ture concerns requiring attention before e-learning applications can be maximized.

The Web-Based Education Commission of the United States Congress (Kerrey and Isakson 2000) has identified a number of important e-learning issues that need Congressional action, including making Internet resources more available and affordable, protecting user privacy, revising outdated telecommunications and other relevant regulations, and promoting private and public sector collaboration. While these issues represent initiatives for the United States, the call to action is equally relevant for all global e-learning applications. With or without action on these and other relevant initiatives, e-learning is rapidly assuming a prominent role in educating individuals at all levels. Along with traditional educational institutions such as colleges and universities, business and industry has become a significant champion of e-learning.

Corporate America is faced with training and retraining 50 million workers, and is turning to e-learning for all aspects of their training requirements (The Telemedicine Center 2001). The US corporate e-learning market was estimated at \$1.1 billion in 2000, and is expected to grow to \$11.4 billion by 2003. The total global market for e-learning is estimated to grow to an astounding \$365 billion (corporate, college and university, government, and elementary and secondary schools) by 2003 (Kerrey and Isakson 2001). While there are many factors causing the dramatic growth, the ability to reach a wide and diversified student population and overcome geographic boundaries with communications technology is clearly one of the driving forces. A pent-up demand for all types of training in a convenient and personalized format is also an important factor. When viewed from the technology perspective, the pervasive use of the World Wide Web (www) has presented educational institutions, business and industry, and the military with a platform for a wide variety of learning programs and activities. Nucleus Research reports that a study of several thousand global corporations found that e-learning initiatives led all information technology applications when measured by return on investment (ROI), far surpassing the more traditional information technology (IT) applications found in industry (Europemedia.net 2002).

The Army Distance Learning Program Model

As the Army moved into the information age, commanders understood they needed to change their training procedures. Training programs were

generally residential institutional programs, very personnel and facility intensive. They required the soldier to come to them, thus making the programs expensive to operate. Training budgets faced peacetime reductions and were not sufficient to train and sustain the skills soldiers needed to perform their required tasks. Many Army schools implemented distance learning on a small scale; however, they generally developed unique programs that could not communicate or interoperate with other programs or schools. A substantial added training concern for the Army is the reserve corps, part time soldiers who have limited flexibility to travel to training classes while maintaining their full time job. With reduced training, readiness is negatively impacted, and the Army needed a coordinated, responsive, effective, and less costly way to deliver training.

The Army Distance Learning Program (TADLP) is the Army's innovative approach to training soldiers, making use of leading edge computer and communications technology to bring the instructor and all the training related resources to the student rather than requiring the student to travel to a central location for training (TADLP 2002). The program emphasizes and supports development of standardized courses for the Army. TADLP provides an environment that supports student/instructor interaction in both real time and non-real time as well as self-paced student instruction without the need for an instructor.

The mission of TADLP is to deliver standardized, individual, collective and self-development training to soldiers and units anywhere and at any time through multiple means and technologies. This includes providing telecommunications and data processing systems, as well as associated equipment worldwide. The program will perform the enterprise management of these systems through one Training Access Center (TAC) and several Regional Training Access Centers (RTACs) and multiple Digital Training Facilities (DTFs). The TAC and one RTAC are located at Fort Eustis, Virginia. To date, about 150 DTFs have been fielded to sites within the continental United States and locations in other parts of the world. Additional RTACs and DTFs are planned for fielding to worldwide military locations over the next several years.

The TADLP will provide up to 400 DTFs, the infrastructure, and the software needed to manage the distance learning enterprise, including students, classrooms, courseware, and facilities management. This is being accomplished through block upgrades and modular contracting. Each block will satisfy a set of requirements and will provide additional functionality. Each new block will be integrated into the existing system.

Block 1, which has been completed, concentrated on deploying modern Digital Training Facilities that incorporated automation and two-way audio/video teletraining (VTT) products into all Army components. Block 2, building on this functionality, allowed the Army to network the DTFS, manage them centrally, and link them to Department of Defense intranets and the Internet. Implementation of Block 2 is well underway. Block 3 will provide the hardware and software for automated student administration, management, and scheduling. Block 3 implementation has been started. Blocks 4 through 6 will provide video on demand and desktop video conferencing, along with simulation capabilities.

The following is a list of the more important objectives of the TADLP system architecture.

- Scalability to accommodate the multitude of courseware applications as well as a large number of digital training facilities and locations.
- A user friendly system, featuring simple user interfaces and single logon protocols.
- A system that minimizes operating and maintenance costs.
- A secure system.
- An interoperable system based on standards and uniform solutions.
- A system that reduces risk by using off-the-shelf technology.

It should be noted that – as with many large scale government programs – budgeting, bidding, and implementation activities are measured in years, and while the technologies and resources utilized are current technologies, they are seldom if ever state-of-the-art. The TADLP program has an overall budget for infrastructure and courseware that approaches \$500 million, and it is anticipated that the blocks will require between five and ten years to implement. Program concerns for security, interoperability and field support preclude chasing technology, something which smaller and more individualized programs may be better able to accomplish.

From the soldier's perspective, along with courseware available, the most important component of the TADLP program is the on-base facilities, management of those facilities, and overall system support. The contract calls for standardization of each learning site along with trained on-site management and centralized help-desk support. A brief description of each follows.

DIGITAL TRAINING FACILITIES (DTF)

Each DTF will consist of 16 student work stations, 1 manager workstation, 1 office jet multifunction machine (printing, faxing, copying and scanning), a laser printer, a VTT system to allow two-way training between and among other sites, and networking capabilities to the NIPRnet government intranet for access to web-based training resources. Facilities can be utilized in synchronous, asynchronous, active and passive modes, depending on the training requirements. Enterprise management will be provided by the TAC center, including network monitoring, patches, anti-virus software, updates and other upgrades required by the program manager.

Networking resources allow for DTF interoperability and access to external resources through the Web. However, e-learning support also includes classroom instruction resources such as a document camera, VCR, personal computer, and student microphones.

Courseware is a critical component with any e-learning application. The TADLP program is unique in that a separate command is responsible for managing the contracts. Courseware development and maintenance is outside the TADLP program, utilizing a different project management team and different courseware contractors. Because of security considerations and overall management control, only approved courseware is authorized for use in the DTF. At times the lack of unified program management can cause confusion or friction among the various project managers and responsible parties.

THE DIGITAL TRAINING FACILITY MANAGER (DTFM)

The DTFMs manage and administer the classrooms, and are under the operational control of the distance learning point-of-contact (POC) individual on each site, and under the administrative and managerial control of the DTFM project manager. A contracting firm, ACS Systems and Engineering, Virginia Beach, Virginia provides project management. The DTFM is responsible for daily DTF operation under the direction of the installation POC. The DTFM will: (1) operate the DTF in accordance with the schedule and availability restrictions established by the local POC; (2) implement procedures to identify, account for, and secure assigned equipment; (3) ensure that sufficient classroom seats are available for both incoming students and students currently in training; (4) perform preventative maintenance on the equipment in the DTF; (5) troubleshoot system and network problems, printer and computer problems; and (6) prepare and submit trouble tickets and/or implement repairs.

The DTMF is also responsible for performing orientation briefings, which include information about operating hours, resources available, equipment operating requirements and restrictions, and details about the facilities. Each student must also have an annual video briefing covering security procedures, scheduled and monitored by the DTFM and logged into the student's record. Tools available for performing their duties include Microsoft Exchange for e-mail and calendaring, and Army-Knowledge Online to submit usage reports, help desk service requests, student registrations and other required reports.

THE TRAINING ACCESS CENTER (TAC)

The overall function of the TAC is to provide help desk services to the TADLP students, DTFMs, and instructors. Telephone, fax and ARweb all serve as access points of entry for TAC service calls. The help desk is the central contact point for information technology support at TAC. It is also the portal through which the DTFMs, instructors and students form opinions about TAC functions. TAC services are available around the clock, every day of the year, and are centralized in Fort Eustis, Virginia. The core values of the help desk are based on six essential principles: (1) integrity, (2) knowledge, (3) respect, (4) professionalism, (5) trust, and (6) customer empathy. It is the responsibility of the help desk to ensure that productivity through the use of technology is maintained at the highest possible levels. Because team members are dispersed throughout the world (especially DTF Managers), a well defined charter or set of objectives, complemented by collaborative tools and the Internet, enhances team development. There is also a Network Control Center located at Fort Eustis, which is responsible for connection, operation, and repair of the video training and administrative systems.

CONTROLLING RISK

System backup is a primary risk control activity. The objective of the backup plan is to ensure that in the event of a complete or partial system failure, there is a workable plan for continued operation of TADLP. Relevant emergency situations to plan for include: fire, flood, civil disorder, natural disaster, bomb threats and other evacuation threats, and other potential incidents that risk lives or damage. Contingencies planned for include: (1) loss of functionality of individual servers and processors, (2) temporary or permanent hardware loss in the DTF, (3) loss or degradation of service caused by malicious attacks or computer viruses, (4) temporary or permanent loss of hardware within TADLP, and (5) student

workstation software failure. These risks are not unique to military or government programs, and similar planning is equally relevant to business and industry technology applications.

Once the risk factors and contingencies are identified and analyzed, a plan is prepared to mitigate the risk. The Disaster Recovery Plan includes: (1) adequate contingency sites; (2) backup plans and schedules; (3) off site storage for tape and other backups; (4) annual testing of the contingency plan; and (5) a recovery plan listing necessary actions and procedures to recover from interrupted operations at the DTF, TAC and RTAC sites, including contractor contact people and phone numbers. Because the TADLP program relies heavily on contractors for all aspects of development and management, a brief discussion of contractor support and services follows.

CONTRACTOR SUPPORT AND SERVICES

As e-learning becomes an inevitable, integral part of meeting the needs for continuous learning, it has fueled a remarkable growth in service providers that help migrate programs from traditional classroom to web-based training, as well as providing for technology platform development and support (Lau 2000). When firms are contracted to develop, field, and support e-learning programs, it is important for them to fully understand the program requirements and objectives. The following list describes some of the more important questions that need to be answered before contractors can effectively assist the Army in meeting e-learning goals.

- What is the current Army training environment?
- What is the current training format being utilized?
- How does the Army currently monitor, measure quality and track training?
- Why is e-learning being launched?
- Can off-the-shelf products be utilized in the new e-learning system?
- What are the e-learning program objectives?
- What geographical and personal characteristics are associated with the learners utilizing the new e-learning system?
- How will the Army monitor and measure quality and track e-learning training?
- What budget constraints should the contractor be aware of?

- What time constraints should the contractor be aware of?

Because the majority of the TADLP program is supported by contractors, it is essential that good communications be maintained between the contractors and the program manager. Program success is possible only when both groups work with the same objectives in mind. The contractor (in the case of TADLP, ACS Systems and Engineering and other contractors) provides help desk support; core services such as network management, support of fielding activities, including classroom construction and setup; program management and staff training; and support of DTF managers, systems development, and software.

To accomplish these activities ACS Systems and Engineering has built a contractor administration organization dedicated to supporting the TADLP program. The basic organizational chart is shown in Figure 1.

Technical reviews and audits provide verification of the system's development process and contracted management activities. These activities are event driven throughout the life cycle of the development activities and the fielding and operation of the Digital Training Facilities. Policies and procedures for these reviews have been developed by ACS Systems and Engineering and approved by the TADLP Program Manager.

Internal reviews provide a means for periodic examination during systems development phases, and provide a basis for baseline growth and expansion. Maintenance reviews provide means for determining the impact of changes on the safety, operability, and reliability of the TADLP system. Configuration audits examine the functional and physical characteristics of the systems and support documentation, which include review of test results, compliance with standards, and configuration control activities. The contractor is responsible for maintaining and control-

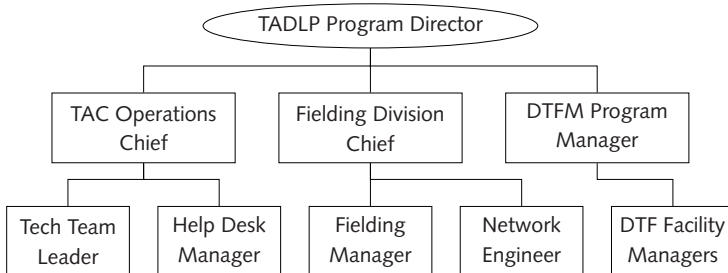


Figure 1: ACS Systems and Engineering Organizational Chart

ling records of all applicable technical reviews and audits and making them available to the TADLP Program Manager.

TADLP CRITICAL SYSTEM DESIGN CONCERNS AND OPERATIONAL ISSUES

The scope of the TADLP program causes considerable complex problems for administrators, developers, and contractors. Numerous government standards and protocols must be incorporated into contract specifications for the networks, facilities, software, and other products and services developed and implemented. Because technology is off-the-shelf, procedures to evaluate various technologies must satisfy both the contractor and the TADLP Program Manager, and must lead to the acquisition of equipment and services that will be compatible and functional.

The following list describes some of the more important system design concerns.

- Bandwidth limitations and variations for the various technologies and locations.
- Firewalls – the IP router network is non-secure, as are some commercial networks being utilized, requiring the use of Virtual Private Network (NIPRNET) encapsulating packets for secure data transmission.
- Maintaining all Department of Defense and other government standards and policies.
- Maintaining a current release Windows operating environment at all DTF sites.
- Incorporating required security levels and procedures into the systems.
- Maintaining system integrity and accuracy.
- Safeguarding confidentiality.
- Following object development/reuse protocols for information use and reallocation.
- Providing adequate system audit points and trails.

Once hardware and software are in place, the program needs to meet operational objectives. By identifying critical operational issues early in the block implementation plan, systems can be designed with these in mind, which determine the basic design specifications. Critical operational issues are to:

- Deliver standardized training courses where and when needed.
- Provide accessibility throughout the duty day and provide timely transfer and downloading of training materials to students.
- Provide means for instructors to communicate with students at remote sites through real time (synchronous) technologies.
- Provide capability to manage classroom and student schedules, enrollment, and tracking.
- Provide interoperability and data exchange with appropriate internal and external systems and networks.
- Manage the TADLP system, including contracted services such as hardware maintenance, facility management and support services.
- Meet and maintain established standards for courseware, training materials, logistics and operations.
- Protect sensitive data and provide adequate security.
- Meet soldier training needs through courseware and other training materials suitable for distance learning applications.

Once the technology, facilities and management are in place and implementation begins, the next critical step in delivering and maintaining a quality program is measuring performance.

MEASURING PERFORMANCE

Performance measurements in government programs are used for three basic purposes: (1) providing measurable results so the agency can demonstrate progress towards goals and objectives; (2) determining effectiveness by measuring how well the agency is meeting its mission, vision and goals, and identifying areas that need attention; and (3) process improvement. The Department of Energy measures performance based on relevance (the degree to which a program adds value and is responsible, timely, and pertinent to the needs of customers), productivity (the degree to which work yields useful results compared to resources consumed), and quality (the degree to which work is considered to be technically excellent). Assessment measures are both qualitative and quantitative, and include peer review, numerical assessments, and customer evaluations.

Challenges for effective performance measurement are many. Some functions are difficult to measure due to the subjective nature of the information. Programs may be initiated with both short and long range

goals and as the program evolves, objectives may change, making measurement of performance trends difficult to establish, maintain, and revise as mission objectives become refined over time. It is also important to note that performance measurement, especially when it is quantitative in nature, will not guarantee successful programs.

When measuring performance:

- The cause and effect of outcomes are not easily established.
- Poor results do not necessarily point to poor execution.
- Numerical quotas do not fix defective processes.
- Measurement can only approximate the actual system.
- Performance measurement does not ensure compliance with laws and regulations.

To work effectively, performance measures require clearly understood expectations, objectives, and definitions so that everyone is working toward the same end. Presently the performance measurements for the TADLP program are very basic, consisting of logging various activities such as hours of system use, technical problems and solutions, soldiers enrolled, and courses delivered. While this data is useful for operational planning, it gives little insight into the effectiveness of the program. More sophisticated performance metrics need to be developed and implemented to help measure how well the program is meeting learning objectives as well as monitoring the overall program effectiveness.

MANAGING RESOURCES

E-learning programs deploy computer and communications technologies in place of humans and bricks and mortar to deliver learning throughout the organization. Efficiencies are gained, but many of the traditional methods and procedures for managing resources and keeping records are no longer viable. Artificial neural network technology can be used in various e-learning environments to manage stored information, filter content, and enable better knowledge adoption on behalf of the users (Kostas, Psarras, and Papastefanatos 2002). The TADLP project management team utilizes a variety of computerized systems to manage software, networks and computer and telecommunications resources, but has not yet incorporated the more sophisticated Artificial Intelligence tools into their management scheme.

Successful implementation of e-learning requires the same level of management commitment as other mission-critical, organization-wide

programs (Henry 2002). Effective operations management is the underpinning for program success. Maintaining a functioning system, facility, learning program and infrastructure is the foundation for student achievement. Understanding and managing the dynamics of technology change, courseware, and system privacy and security are significant challenges. E-learning is not a program that can be designed, installed, and ignored. If it is to be effective, e-learning must be continually managed. By developing the overall plan in the Block format, there is an evolutionary approach to development and implementation. TADLP depends on various contractors to perform necessary services as they initiate new activities in each Block of the overall plan.

MAINTAINING STANDARDS

When standards are not given appropriate concern by people designing and implementing e-learning programs, they may find that the e-learning activities are less convenient and more fragmented than they should be. By being concerned with maintaining standards from the inception of the program, e-learning flexibility and consistent delivery systems are more easily maintained (Singh and Reed 2002). TADLP standards start with system access. Student interfaces, navigation tools, and administrative record keeping are consistent throughout the system. Hardware standards are important, as programs cross national and international boundaries. Utilizing standardized commercial products rather than custom designed hardware and software keeps costs under control and makes documentation and access much easier for TADLP management.

Discussion

Change is the common denominator in today's organizations, and the Army is no exception. Technologies, knowledge and procedures are evolving at a very rapid pace, requiring a workforce with ever-increasing education and skills. When both public and private organizations look at developing strategies for effective workforce training, e-learning is seen as a way to economically and effectively address many of the major training issues. Some of the more important issues identified include:

- Increased demand for skilled workers. Skilled jobs now represent 85% of all jobs in the United States. By 2006 nearly half of all workers will be employed in industries that produce or intensively use information technology products and services.

- Shortage of skilled workers. In 1999 nearly 720,000 IT positions went unfilled in the United States.
- Need for continuous training. It is estimated that 50% of all employees' skills become outdated within 3 to 5 years.
- Shift to use of web-based training for workers. Classroom use in corporate training is expected to decrease and the market for web-based corporate learning is expected to grow from \$550 million in 1998 to \$11.4 billion by 2003.
- Growth in Corporate Universities. 40% of the Fortune 500 companies have established corporate universities, and at the current rate the number of corporate universities will exceed the number of traditional universities in the United States by the year 2010 (adapted from Kerrey and Isakson 2000).

It should be noted that these same issues have an impact on military training programs. More sophisticated weapons, vehicles, support technologies and battlefield strategies put pressure on military commands to maintain well trained soldiers in the field. The Army views e-learning as an effective means to meet many of their training needs.

While there are many different reasons for public and private organizations to embrace e-learning, three that are relevant to almost any organization would be: (1) the desire to customize learning environments to the changing needs of the learners; (2) the need to improve training-related administrative tasks such as how and when training is delivered; and (3) the desire to pare down the cost of training. The Army has done a good job of defining their training objectives; planning the program implementation utilizing the block approach; effectively communicating the plan to developers and Army personnel; implementing the technology-driven components on or ahead of schedule; and monitoring the network, faults, system access and program utilization. The TADLP program has deployed current technologies in the classrooms, has sophisticated networking and communications facilities (with centralized management and software support) to link various training sites, and is able to function in synchronous, asynchronous, active and passive modes with multimedia, video, and voice transmissions for single or linked classrooms. The current constraints found in the program are with limited courseware deployment rather than with technology and facilities. The technology development, deployment, and management

systems are currently ahead of the courseware development and system monitoring and evaluation systems. When compared with business and commercial e-learning applications, the TADLP program planning, resource and management activities look to be comparable with all but the most leading edge applications.

As one might expect, policies and procedures play a significant role in operating and managing the TADLP program. Integrating the Department of Defense, Army, government, and individual privacy requirements has been a challenge for both program planners and program contractors. The program development and operational activities are almost completely outsourced, requiring clearly written and comprehensive specifications, policies and procedures. Privacy and security have been major concerns, and have received a great deal of program management attention. Specifications and requirements have been clearly described, and TADLP administrators have had almost no problems in either of these areas. Complaints have generally been directed at the cumbersome and time consuming procedures required by soldiers to access and utilize the systems, which are a function of program management concern for security and privacy.

TADLP management made the decision to utilize off-the-shelf hardware components, operating systems, networking, and video and voice technologies. This has standardized the design and configuration of the classrooms being built. There has been some variation in the furniture and fixtures; however, there has been an effort to standardize these as well. The objective is to provide a consistent experience for the soldiers wherever they are when they access e-learning utilizing the TADLP system. It also makes updating and modifying of hardware and systems easier to support and justify.

To be successful, online education needs good quality, well-delivered course material supported by tutorials, advice, counselling and an overall support system which will effectively manage the program. The quality of student-to-student and student-to-instructor interaction may be less than is found in a face-to-face classroom setting, where prompting by the instructor, body language, and social interaction come into play. To mitigate this, instructors need to organize and deliver their courses in ways that are very different from traditional classroom lecture formats. With any online course, the danger is that students will become spectators rather than participants (Healy 2001). Courseware development has been a significant challenge for TADLP. Development is contractor

Table 1: Issues with Online Course Delivery

| Pros | Cons |
|---|--|
| <ul style="list-style-type: none"> • Flexibility of scheduling and communicating – any time and any place access • Eliminates or reduces travel time and classroom construction • Provides a format for self-paced learning, tracking and assessment • Instruction can be more customized and personal to meet individual needs • Economies of scale providing uniform training and applications • Improves training related administrative tasks | <ul style="list-style-type: none"> • Very capital intensive for delivery systems and resources • Courseware development is more difficult and expensive • Requires added instructor technical skills, course development and preparation time, software updates • Traditional content may be difficult to move online • Requires learners to have minimum technical skills • Cheating, fraud, and virus risks may increase in the online environment • Lacks social environment for students and instructors • Can be difficult to structure assignments and provide clear and explicit instructions |

driven, and to date has not met completion targets. Table 1 outlines some of the more important issues with online course delivery.

Distance education can be a very powerful tool. However, to make these programs as effective as face-to-face traditional courses the technology needs to be constantly updated to take advantage of the new technology. This includes more interactive activities, modified lectures, more discussion sessions, and a chat room and bulletin board for student-to-student and student-to-instructor communications (Nelson 2001). Developing these activities and tools for the TADLP program has gone slowly, and specifications have been much more difficult to prepare than specifications for communications technology, classroom resources and network and enterprise management software. Because both the infrastructure and the courseware are contractor supplied, program managers need to be particularly sensitive to getting their specifications right the first time.

Moe, Bailey, and Lau (1999) report that corporations often find it more efficient and expedient to focus on what they do best, and develop outsourcing partnerships with firms who are capable of providing other resources and expertise when needed. Our rapidly changing technology environment may be the catalyst for organizations to consider outsourc-

ing e-learning to control costs and utilize the most current technologies. TADLP has chosen to outsource all but project management activities.

Three general models of outsourcing are often utilized. The first is for the organizations to establish their own e-learning center, either by themselves or via a joint consortium with other organizations. This is the approach TADLP has chosen to take. A second approach partners a group of organizations with technology and/or e-learning companies to develop joint ventures into distance learning. A third alternative is to form alliances with not-for-profit organizations such as colleges and universities, trade associations, and professional associations. The Army does some partnering with colleges and universities under other programs that complement TADLP.

Supporting e-learning activities are a wide variety of commercial software products and network services. Two major companies that support online education are Blackboard and WebCT. These and other similar software tools provide a means for educators to create and manage their online learning activities. The focus has been on providing an environment suitable for university e-learning activities, but these tools are often also appropriate for a much wider application in the business and industry training arena. To date they have not been incorporated into the TADLP suite of software, but do offer unique opportunities for more effective system utilization once the courseware selection becomes more robust. In addition to managing student learning activities, TADLP management must also provide for various system management activities.

There are many significant management and operational issues to be considered with any e-learning implementation. Five critical issues are: (1) developing policy, (2) measuring performance, (3) managing resources, (4) maintaining standards, and (5) satisfying users. The introduction of e-learning is requiring many organizations to review, modify, amend, or rewrite their existing policies covering training and educational programs from the perspective of both the student and the instructor. The Division of Government and Public Affairs has produced a white paper *Developing a Distance Education Policy for the 21st Century* (American Council on Education 2000) which addresses some of the more relevant issues. Of primary concern are intellectual property policies and procedures. Patent, copyright, and software licensing are a few of the issues that need to be addressed. As we move from traditional classroom training to distance learning and e-learning we have an opportunity to: (1) clarify what is intellectual property and the circumstances

under which the institution will assume the costs of protecting intellectual property; (2) define inventor and author rights, including rights of revision and adaptation, reproduction, and ownership; (3) identify when and how the organization can use intellectual property generated by instructors; (4) clarify how instructors will be compensated for the development and preparation of distance learning courses; and (5) identify who will administer the organization's intellectual property policies. Because the training materials utilized by the Army TADLP program are often unique and not generally created or used by the general public, intellectual property rights are not a major concern.

Policies directed at student issues include: (1) describing and defining access rights and responsibilities; (2) fees and financial responsibility; (3) privacy issues; and (4) liability. Limiting liability, especially copyright infringement, requires development of policies that cover the types of materials incorporated into distance learning courses and procedures for clearances or releases for use and distribution. In addition to relevant and carefully crafted policies, E-learning needs to be compelling to the targeted audience, offering resources that are seen as valuable and appealing to the learner (Henry 2002). Thompson et al. (2001) suggests that a tension is often created between the endless technologies available for deployment in e-learning programs and the need for the human dimension in learning. Successful organizations are able to manage the tension and deliver an acceptable balance for their learner population. TADLP students experience this tension most often with the security and cumbersome access procedures that are incorporated into the system. The natural outcome of tension is frustration and dissatisfied system users.

Steve McGrath (2002), a Department of Energy performance management specialist, discussed performance metrics with the authors. He believes that customer satisfaction is the basic building block of any performance management system. He states that you need to focus on what the customers really want (not what you think they need) and work to do what you do faster, better, and cheaper. The rest takes care of itself.

When we look at satisfying users, the glaring deficiency in the program is the availability of a rich and robust course offering list. Courseware development has been lagging, and from the soldier's perspective, this defeats the purpose of the program. Program managers may be more satisfied than soldiers, because they have been able to develop the infrastructure and training sites within budget and on time. Standardization has kept technical problems to a minimum, and the programs that

have been delivered are considered to be successful. Because a different training command manages the courseware development and deployment, TADLP administrators have found themselves at a disadvantage when they measure user satisfaction. After four years of operation, it has become very clear that it is much easier to develop, manage and control the e-learning infrastructure than it is to develop and deploy quality courseware. Optimistic and unmet courseware development schedules have been the bottleneck for the program, and courseware design and development has proven to be much more time-consuming and expensive than was expected when the program was launched. We believe that it is safe to say that effective courseware is the Achilles heel of any e-learning program, and unless adequate resources and management attention are directed at courseware, the e-learning program will fail to fully meet training expectations. The infrastructure is only able to deliver the learning materials that are available and appropriate to meet program objectives.

REFLECTIONS ON TADLP

While the ultimate overall success of TADLP is still possible, it is clear that success, if it comes, will not be quick. The authors are not privy to the reasons why the Army chose to have the courseware development and the technology to be delivered in separate commands. It is clear to the authors that was a mistake, and only time will tell if it was a fatal mistake.

The result of this decision was the lack of an overall manager for TADLP. Management literature is filled with examples of what happens when two or more people are in charge – no one is in charge. It also resulted in the project manager for the development and deployment of the delivery mechanisms for the distance learning being severely handicapped because of the lack of suitable courseware.

Careful planning utilizing the Block approach makes TADLP systems implementation an evolutionary activity, with opportunities to remain technologically current, while continuing with implementation activities for more sophisticated applications and activities. Standardizing technologies and deploying off-the-shelf hardware and software keeps costs down, makes sites very compatible, and provides a common look and feel throughout the locations. A great deal of thought and planning went into designing the TADLP infrastructure, and the reward is a smooth running group of Digital Training Facilities and Training Access Centers support-

ing the DTFS. The planning and development activities could serve as the basis for any large global training program.

The weakness in the TADLP program continues to be courseware availability. Developers and contractors have experienced a great deal of frustration in meeting goals and deadlines, and all but the simplest training activities are not yet available through TADLP. The lack of suitable courseware for TADLP is not a unique problem for it has plagued e-learning in general from the very beginning. The lack of courseware also makes the measurement of user satisfaction with TADLP difficult, if not impossible. While the operational issue of the user friendliness of TADLP needs to be addressed, the ultimate satisfaction of the user will depend on the quality and availability of the courseware.

The success of the eArmyU program reinforces the value of having suitable courseware. This program designed by the Army to improve retention provides the technology for e-learning, but the courseware is provided by the participating colleges and universities. While the goal of eArmyU is different, its success points out the importance of a robust variety of suitable courseware.

Additional frustration is experienced because there is no overall project manager, and separate command structures and project managers control the infrastructure and courseware development. While having an overall project manager for TADLP would not guarantee the appropriate courseware, it would make the overall evaluation of TADLP easier and more meaningful.

TADLP to date reinforces the idea that while the management of computer and telecommunications technology is complex, it is still easier to manage than people intensive activities such as courseware development. Any organization developing a global program needs to be aware of this problem and find ways to coordinate and meet planning objectives.

A key component to the management of an effort of this magnitude and type is to effectively coordinate and manage contractor support functions and activities. Organizations need to assess their strengths and weaknesses to determine in-house capabilities and identify potential contractor supplied services. While there does not appear to be a hierarchy for contractor supported activities, there are critical 'choke points' for any application. Core services such as network management include some of the more critical systems for program success. Because the entire distance learning project is dependent on the electronic distribution system, network failures will quickly choke the entire system. Another pos-

sible choke point lies in the systems and software development efforts. Failure or delays may not cause the system to crash, but may cause limitations and restrictions on activities that can be performed. In the case of the TADLP program, one primary contractor provided the majority of the support services (exclusive of courseware), making communications and management easier than if there were multiple contractors.

From an operational perspective, fielding activities such as classroom construction, furniture design and configuration, and technology setup may be best handled by a contractor familiar with construction requirements and codes. Issues such as ergonomic design, lighting, furniture placement and layout, and power and cable requirements require specialized knowledge, and are often less expensive when utilizing a contractor.

The risk that must be assumed with any contractor is timely delivery of the needed services at the desired level and quality. When a contractor is unable to meet commitments, the organizational exposure for failure is much greater than when the activities are being done in-house. Contractor documentation is often limited and inadequate to allow the client to pick up the project at some point along the way. Organizations will generally lack the technical staff to step in and effectively take over, and the investment in the project can be lost, requiring a fresh start. Therefore, care in selecting a contractor is a critical management issue, requiring demonstrations of competence, reference checking and evidence of past project success. Selection of the contractor may be the single most important activity after careful definition of the project planning and requirements. While price is certainly important, the organization needs to be assured that the contractor selected can meet the needs of the organization and deliver the desired services and products.

A second component necessary for a successful client/vendor relationship is the establishment of a set of procedures to periodically examine and review progress during the systems development and other contracted activities. This would include a regular review of systems characteristics, documentation, testing and test results, standards compliance, audit and control issues, and operational and management issues. Regular communications need to be maintained between the contractor and client, usually through both written memos and reports and client/contractor meetings. A well informed client is critical to ensuring a satisfied customer.

When we look at the TADLP infrastructure planning details, program

success is closely linked to the full understanding by the Army of their training requirements and future needs before they begin any program development activities or let any contracts. Understanding the need for managing change and standardization drove the TADLP planning efforts, and ultimately contributed to the contractors meeting and satisfying the Army with respect to the implementation of the delivery mechanisms for the e-learning.

While not a perfect program, TADLP planning, development and implementation activities can serve as a guide for organizations developing global training programs utilizing the World Wide Web, other networking technologies, and E-learning for personnel training and education programs.

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