

What is the Question to which EdNA is the Answer?

A discussion paper prepared for the project

Teacher Education and the EdNA Directory Service

Susan Groundwater-Smith

Educational Research & Professional Development Services

on behalf of the Australian Council of Deans of Education

Introduction:

The project *Teacher Education and the EdNA Service Directory* is charged with meeting the following two objectives:

- a) Familiarise teacher educators and their initial and post-initial teacher education students with the EdNA directory service and current developments in the area of information and communication technology; and

- b) Facilitate and initiate input and links with the Directory by teacher educators and their organisations.

In order to meet these objectives effectively it is important first to develop an insight into, and critique of, the EdNA directory itself and the nature of one of the communities of practice for whom it has been tailored (i.e. teacher education). The latter part of the paper will draw attention to a proposed ancillary website, 'Learn EdNA', which will support teacher educators and their students in addressing educational matters, using the resources of the EdNA directory.

This discussion paper has emerged, not only as a result of the research and analysis of the author, but through a range of debates with members of the project research team convened by the Dean of Education at Deakin University. The team included teacher educators, technology support persons, a website designer and information scientists.

EdNA as Text:

As a way forward I propose to discuss the website as a pedagogical interface, the site itself may be seen as text. The sponsors of the site I have positioned as authors-as-teachers, and the users of the site as readers-as-learners. The principal learning processes, I shall argue, are analogous to the acquisition of a kind of literacy.

It is important to first consider websites as text; and the ways in which digital literacies vary from print based literacies because texts lie at the interface between the 'author' and the 'reader'. They vary in their substance and organisation depending upon the purposes for which they are designed. Similarly the readings taken of the text vary greatly in relation to the reader's competence and experience. It is not sufficient to merely decode the literal meanings, but to understand something of the genre and its antecedents, as well as the substance of the material. Later, in this paper I shall argue that many 'readers' of websites, such as EdNA, because of former traditions in their community of practice, are not confident or fluent as readers of digital texts.

Green (1997) has noted that we are at a juncture where there is a considerable shift from print media and the conventions which govern the organisation of print media, to digital electronics which employ a very different set of apparatus; apparatus which can be potentially managed by a wider and more anarchic set of users than ever before. A website is not merely a collection point for information. It is an intricate, organic, non-linear medium with a capacity to grow and change. In the first volume of *Digital Rhetorics: Literacies and Technologies in Education* (DEETYA, 1998) the argument is made that 'electronic language is differently organised and realised than either speech or writing, in such a way as to enable us to recontextualise all our previous understandings and experiences of language and communication' (p.34).

For example, the first base document of any website is its home page. Not only does the home page signal the range of interconnected 'pages' and images incorporated within the site, it also signifies, through its organisation something of the cultural values of its sponsor(s). Take *The Simpsons Archive* (<http://www.snpp.com>) the formation of the text appears artless and 'folksy'.

Frederic Briere, after a long absence, has begun to upload new episode capsules for seasons 8 and 9. Thanks for your patience over the long dry spell.

Contributors are named, the language is colloquial. At the same time we can only guess at their purpose in creating and contributing to the site. On the other hand EdNA emanates

from a named bureaucracy, a large federal government department. Whereas *The Simpsons Archive* introduces itself thus:

The archive is the product of many 'net folk' who inhabit the Usenet group (listed). We invite you to submit all copyright cleared, Simpsons related articles, lits and other information....

EdNA opens its home page in this way:

This service provides access to quality Internet sites for the education and training community. It offers opportunities for educators and students of all ages to learn together, share ideas and find information. The Directory Service has been developed collaboratively. It will grow and change as you, the users, shape it.

The links to information are listed as:

What is EdNA:

-

Edna's Collaborative Framework:

-

The Edna Directory Service:

-

Current Developments:

-

Schools and EdNA:

-

VET and EdNA:

-

Higher Education and EdNA:

-

Archives:

The last of these links includes Dr David Kemp's, then Minister for Schools, Vocational Education and Training, keynote speech to the Asia Pacific World Wide Web Conference, Hong Kong (27th August, 1996). Minister Kemp claimed that the establishment of EdNA would avoid duplication, overlap and overcentralisation and allow for local initiatives and a high level of interaction.

It represents a commitment to collective action on the part of the education sector to coordinate and promote the development of quality content; to establish a national on-line directory structure for educational products and services and to set standards about what products and services should be accepted as part of that directory structure. EdNA does not involve the creation of a new, physically separate network structure. (Kemp, 1996, p.2)

Just as it has become clear to educators that a curriculum text is not some kind of neutral set of planned learning activities developed independently of its authors and their life worlds, so too is it important to recognise that the designers of EdNA brought to the task of constructing the site a series of explicit and implicit purposes. Furthermore the site itself reveals much about the cultural context of the organisation which sponsored it, the Department of Employment, Education, Training and Youth Affairs (DEETYA). It is important to examine the text of EdNA in the context of DEETYA and in relation to the pretexts underlying its creation. Indeed, it may be seen that:

Technology (read 'website') is not the name for some specific 'thing' or 'phenomenon': it is not an autonomous independent causal factor; it is not value neutral; and it should not be thought of in simple 'instrumental terms' i.e. means to ends or as a 'tool'. It important to think of technology as *practice*, as ways of doing things... (DEETYA, 1998, p.25).

Furthermore, Star (1995) reminds us that there is a relationship between power (of an organisation) and infrastructure (in terms of technology).

Because computers are simultaneously communication media and product objects of analysis and infrastructure for analysis, intimate and formal, they form good occasions to study a variety of basic processes: the development of material culture, the formation of practice based networks, the fallibility of language, the relationship between power and infrastructure. Where they model work processes and facilitate them, they are a mirror of those

processes, as in systems and requirements analysis; where they simplify or reify informal and local understandings, they are a house of mirrors for both designers and users. (p.6)

As a large bureaucratic organisation DEETYA has a cultural history which is reflected in the organisation and 'mirrored' in the design of the website. Hodas (1996) has forcefully stated that 'the norms and procedures of entrenched bureaucratic organisations are strong and self reinforcing' (p.217). Lakoff (1987) reminds us that categories reveal much about the human mind, similarly we can see that categories, as used in EdNA can reveal much about the organisational mind. As McLuhan (1972) reminded us over two decades ago, the medium is the message.

While there are claims that the site is interactive and fluid, it signifies a somewhat more rigid and fixed environment. Its categories 'tell' the user what is available. If the website is the pedagogy, then it is a teacher centred pedagogy. The challenge is to find a means of it having a stronger learner centred orientation.

For the purposes of this discussion paper, the learners can be perceived as falling into two categories; teacher educators and their students and it is to their skills and perspectives that I now turn.

Teacher Educators and their students as EdNA Learners:

Teacher education can be seen as a community of practice inhabited by a diverse range of academics in terms of their disciplinary foundations and the cultural norms and mores of their universities. But how diverse are they in terms of their age, gender, race and ethnicity? Although published almost ten years ago, *Where the Buck Stops* (Turney and Wright, 1990) characterises teacher educators as: middle aged and ageing, native born Anglo-Celtic Australians, who are predominantly male. Their occupational rewards grow from research and scholarship, although many would claim that their emotional rewards come from their teaching and interaction with students. They are, in the main, acculturated by literacy practices embedded in print.

If, as is argued in *Digital Rhetorics* (DEETYA, 1998):

A way of reading a certain type of text is acquired *only* when it is acquired in a 'fluent' or 'native like' way, by one's being embedded in (apprenticed as a member of) a *social practice* wherein people not only *read* texts of this type in this way but also *talk* about such texts in certain ways, *hold certain attitudes*

and values about them, and *socially interact* over them in certain ways ...
(p.18)

then teacher education, as a community of practice, can scarcely yet be seen to be occupying a world where there is a fluent reading of digital texts. While highly print literate, it might be argued that teacher educators, as a body, are illiterate when it comes to digital texts. The technology practices of a website are only partially known and understood.

Teacher educators have developed considerable skills in navigating print based text. Confronted with a book, a journal, a newspaper, they understand its organisation and configuration. They understand tables of contents, indexes, appendices, chapters, introductions, conclusions, prefaces and the like. They know that they do not have to 'read' the whole text to find what they are looking for, but they understand the integrity of the whole and the ways in which it provides a context for the part. They know something of genres and text types and can make appropriate selections. Many understand concepts of critical literacy. They have skills in interrogating the text, in questioning an author's goals and purposes. They bring all of these skills to navigating an electronic text and find themselves in deeper and more turbulent waters than they could have imagined.

Matthew and Zeitlyn (1996) in their investigation of the uses and usefulness of electronic bibliographic databases in academic contexts found that there were two fundamental constraining factors in using electronic information with facility: one was the nature of the cultural networks (read 'communities of practice') of which academics are a part; the other, the status of self evidence. They argue that those with a 'bookish' orientation, particularly in the humanities find themselves less comfortable with digital texts and that as the density of those who do have facility diminishes the capacity to exchange insights and understandings also diminishes. Self evidence relates to the extent that those who can be of assistance rely upon prior understandings which may not, in fact, exist. Failures to make the technology work effectively lead to negative reactions and avoidance.

These researchers also pointed to the different ways in which different academic disciplines typically research. Those in the natural and physical sciences tend to be members of teams, often based in shared laboratory space. On the other hand, academics in the social sciences very often work individually, while their research students also operate independently; thus there are fewer opportunities to share knowledge and 'knowhow'. When tackling a website such as EdNA there is every chance that neophytes will find themselves unable to progress.

The structure of EdNA is not readily revealed to them. They have to penetrate deeply to find the information they are seeking. Academic work has intensified; it cannot permit the leisurely browse. If the information cannot be found, it will be looked for elsewhere, another website; another medium. Of course, in academic work, information is the beginning of the scholarly process, the important intellectual work is done in relation to transforming the information into personal knowledge. After all, academic work, is knowledge work.

Burbules (1998) writes of the consequences of creating what he names 'messed up information; poorly organised and presented, to the point where it is not useable at all' (p.114) or information so distorted as to undermine the knowledge generation process itself:

The problems of selection, organisation, interpretation and synthesis of information - what one could call, in shorthand, turning information into knowledge is the more time-consuming, intellectually challenging and potentially controversial process that actually allows people to do something with that information..... An (other) element of this process is sloppy Web page design: long lists of links with no organizers or annotation to tell you what you will find from them, or links that are no longer active, indistinguishable from working links. Badly designed pages with poorly organised and undependable links often lead to the problem that the users feel 'lost', uncertain of their position within the relational network of links that make up the World Wide Web. How did I get here? Where can I go next? This becomes the major source of frustration for new users, despite improved navigational capabilities with new Web browsers. (pp. 114-115)

Teacher educators are not alone in being inexpert users of the internet. While many of their students are of a generation where the use of computers in education has become ubiquitous, few have had sustained opportunities to use the extensive resources of the World Wide Web which has only burgeoned in the past five to ten years. There is little data to inform us about the extent to which today's teacher education students use computers as personal productivity tools, particularly in relation to information searching.

Rosen & Wil (1990) reported that in most surveys undertaken in the tertiary context approximately one third of students hold fears about computers, leading to avoidance behaviour. This phenomenon has been confirmed more recently by Russell and Bradley (1996) who have also noted a relatively high degree of technophobia among their predominantly female teacher education students and have instituted a computer education program which rests upon a collaborative, rather than individualistic learning environment and where students are advised that their fears are understood and can be located in a long socio-cultural history of technophobia.

The fears expressed by students in the Russell and Bradley study were also reflected in that undertaken by Albion (1996) who recommended that teacher education students concentrate upon the pedagogical issues associated with computer use, rather than being more broadly trained to understand the technology itself. A rather more sophisticated argument is put by Bigum (1997) when he casts a new light upon the relationship between the technology and the user as far more dynamic and interactive than had hitherto been understood. Bigum bases his argument upon actor-network theory: 'Actor Network Theory draws attention to the processes by which technologies and their users are spoken for' (p. 255); he assigns 'will' to humans and non-humans alike; as the technologies take on new competencies so too do the human operators; with the relationship between the two being

constantly fluid and dynamic. This may be a critical insight for those planning computer education courses for those intending to become teachers.

In some ways it might be seen that the Open University's Post Graduate Certificate of Education (PGCE) which was delivered to over a thousand students by distance education, using multi-media methods (Selinger, 1997) and which established the benefits of electronic networking between pre-service teacher education students, worked from a basis of Actor Network Theory. As the technology became more sophisticated the students' uses of its interactive features grew and changed. The success of the Open University project, however, rested largely upon the provision to all participating students of good quality computers which they used in their homes.

Clearly, a number of today's tertiary students in Australia do have access to computers in their homes. The Australian Bureau of Statistics has undertaken two studies of computers in households (1994, 1996). In just these two years there has been a continuing growth in home ownership of computer technology. Downes (work in progress) has compared the two studies and found that:

- computer usage in private households in Australia has increased from 23% to 30%;
- the total number of computers in households increased from 1.9 to 2.5 million;
- the percentage of computer-owning households with modems increased slightly from 17% to 23%.

However, we should not be too sanguine, these statistics would indicate that less than one in ten households have access to the internet and we can only surmise as to how many of these households contains a teacher education student. Given the interaction effects of gender (in the ABS studies gender differences existed both in terms of the amount of time spent in using a computer and the purposes and activities for which males and females used computers) and given the feminization of teaching; it could be hypothesized that a substantial majority of teacher education students are as uncertain about the ways in which the Internet is organised as their academic mentors.

So how may the pedagogy and curriculum of EdNA become more learner oriented?

Contemporary constructivist learning theory suggests to us that an important means to supporting learning is to provide scaffolding which allows the learners to become progressively independent as their mastery increases. It is possible that by first developing a plain language thesaurus, which effectively maps the EdNA website, we could take a useful step forward. The dictionary tells us that a thesaurus is a 'treasury' or 'storehouse' of knowledge. Roget took this to mean the creation of a 'classed catalogue of words'. Clearly, it is impossible to create a shell which will contain the complete set of knowledge, encyclopedic in nature, which would embody all that we understand about the theory and practice of education. However, We can examine what is available on EdNA and consider ways in which it can be better signposted. We can aim for a more modest conceptual plan which outlines the major landmarks and the ways in which they relate one to the other.

An Education Thesaurus:

Roget divided his thesaurus into six classes: abstract relations; space; matter; intellect; volition; and, affections. Of these two classes, intellect and volition were subdivided (the formation of ideas and the nature of ideas communicated; individual volition and intersocial volition). Each class or subdivision then contained sections which in turn enfolded a specific vocabulary. I would propose that we can develop a similar organisation for the field of education as embodied in the EdNA website. Our major classes should be broad ones, the four major 'P's: Pedagogy, Process (with subcategories of Practices and Productivity) Purposes and Professionalism. Pedagogy may be seen as the point where teachers and learners come together to enact the curriculum in the social context of the school and classroom and where learning is assessed and reported upon. Processes' first subcategory Practices embodies the methods which are used to support pedagogy; the ways in which educational provision is organised and resourced and the attention which needs to be paid to particular groups with specific needs. The second subcategory, Productivity relates to the management of schooling in the context of a devolved, market driven economy. Purposes clearly takes account of the varying reasonings underpinning educational decision making and the discourses and ideologies which inform such reasonings. Finally, Professionalism takes account of teacher education (both in-service and pre-service) teachers' work and teachers' status and the various bodies who play an influential role in determining the teacher education curriculum.

Each of the classes, in turn, has its own set of sections which also interact with one another, with each section completed by a number of minor nodes. These classes and examples of their associated vocabulary are outlined in Figure 1. It is important, at this stage to see this organisation as provisional. It is intended in the project to develop the thesaurus following the advice of information scientists.

Figure 1

Classes, Subdivisions, Sections and Nodes

BUILDING BLOCKS ONLY

PEDAGOGY (WHAT?)

Teachers and Teaching:

Reflective practice; teaming; roles and responsibilities (instructor, coach, mentor; manager, scaffolding...); behaviour management; teacher as learner; teacher knowledge.

Learners and Learning:

Individual learning; cooperative learning; peer assisted learning; motivation; self concept; resistance; compliance; welfare; wellbeing; ability; identity; anxiety; attitude; creativity; bullying; problem solving; developing concepts; developing constructs.

Contexts for Learning:

Schools and classrooms; socio-cultural characteristics; class size; multi-aging; coeducation; single sex schooling; selective schooling; comprehensive schooling.

Curriculum Processes:

Enquiry; investigation; transmission; frameworks; technologies (multi-media, computers, critical literacy).

Assessment:

Achievement testing; comparative testing; state wide testing; school based testing; certification; grading; norm referencing; criterion referencing; examinations; high stakes assessment; formative assessment; summative assessment; records of achievement; performance standards; benchmarks.

Reporting:

Negotiated; portfolios, performance; projects; progress mapping; accountability.

PROCESS (HOW?):

PRACTICES:

Subject Methods:

Science education; maths education; English education; languages other than English education; humanities education; citizenship education; environmental education.

Key Competencies' Methods:

Technology education; literacy education; library education; social skills formation; information management.

Organisation of sectors for education:

Early childhood education; primary education; secondary education; tertiary education; home schooling.

Attending to groups:

Aboriginal education; special needs education; gifted and talented education; multicultural education; bilingual education.

Resources and their management:

Ancillary support (guidance, careers, aides); libraries, laboratories (science, computer).

PRODUCTIVITY:

Efficiency:

Effectiveness; improvement; change; reform; value adding; back mapping; quality; human capital development.

Devolution:

Restructuring; reorganising; management; governance; decision making (autocratic, participative).

Administration:

Bureaucracies; school administration; accountability; learning organisations.

Markets:

Delivery; expenditure; quality; marketing;

PURPOSES (WHY?):

Policies:

Federal; state; local.

Discourses:

Difference and diversity; gender; race; power; equity; relevance; ethics; aims; employment outcomes.

Perspectives:

Historical; psychological; sociological; philosophical; epistemological; economic.

Stakeholders:

Parents (choice, control, involvement, participation); students; providers (government, non-government[Catholic, independent]).

Research:

Experimental, ethnographic, case study enquiry, teachers as researchers; action enquiry; qualitative research; quantitative research; validity; narrative; life history method.

PROFESSIONALISM (BY WHOM and HOW PREPARED?)

Teacher Education:

Preservice (practicum curriculum, internships, content knowledge; subject matter knowledge, pedagogical knowledge, communication skills, identity formation, socialisation, concerns [self, impact, task] theory/practice relationships, micro teaching); Inservice (mentoring, teaming, workplace learning, leadership, distance learning, school focused training and development, training and development delivered by systems, post graduate tertiary education).

Teachers:

New; beginning; returning; experienced; teacher leaders (Principals, Deputy Principals, Heads of Department).

Teachers' Work:

Attitudes (satisfaction, fulfilment); beliefs and their effects; roles and behaviours; intensification; stress; appraisal; accountability; evaluation of own teaching; organisation; promotion (equality of opportunity); decision making; collegiality.

Processes:

Problem based learning; induction; novice/expert relationships, supervision; teaching portfolios; planning; investigation (observation, journal keeping; reflection).

Supply:

Supply and demand.

Credentials:

Employing authorities' certification; tertiary qualifications.

Accreditation:

Registration; teacher competencies; teacher status.

Professional Links:

Unions; subject associations; Australian College of Education; National Schools Network; partnerships (schools/universities, professional development schools).

Conceptually it may be seen that these components link in the form of a 'map' of the education landscape, see Figure 2, 'Conceptual organisation of the field of Education'. The notion of a 'map' is important in the context of using complex information resources, for the map becomes a powerful navigational tool (Green & Bigum, 1996, p. 199).

These components, then, are the building blocks of the practical study of education which the EdNA website is designed to assist. Its 'rhizomatic or web-like conceptual organisation (Burbules, 1997, p. 279) can be better realised and appreciated once it is reconfigured in this way and the cultural dimensions of the site and the ways in which it is read are understood. This takes us some way to realising our first aim: to familiarise teacher educators and their initial and post-initial teacher education students with the EdNA directory service and current developments in the area of information and communication technology. The mapping also gives support to the ancillary website designers as a form of pre-organisation; a feature lacking in EdNA itself.

Figure 2

Our second aim will require attention being paid to recommending a series of strategies which will contribute to the dynamic possibilities of the site and the links which may be made between it and teacher educators and their organisations. It is to these strategies that this paper now turns; the first being to test the usefulness of the thesaurus in conjunction with the EdNA directory to research educational scenarios.

Testing the Thesaurus via Scenarios:

The use of scenarios is well documented in the literature of business and commerce (De Geus, 1988; Jungermann and Thuring, 1987). Portrayals of various challenging possibilities which an organisation might encounter are examined and analysed and resolutions and actions proposed. They are seen as important planning and decision making tools (Mason, 1994). Scenarios also sketch wider possible social change with implications for private and public sector reform; for example McCorduck & Ramsay (1996) whose text *The Futures of Women: Scenarios for the 21st Century*, has been used extensively to develop alternative models of the future and their implications for business management.

In effect scenarios are constructed stories which model plausible situations; they are evolved in multiple forms so that comparisons and predictions can be made. They take account of both pre-determined factors and uncertainties and usually contain social, economic, political and technological elements (Wilkinson, 1998).

Three sets of scenarios are presented here; one which could be researched by pre-service teacher education students; the second by post graduate teacher education students and the third by policy workers. In each set two alternative scenarios are developed.

Scenario Set 1:

Maladoch Heights Boys High School is in a state of crisis. It is a comprehensive school set in an ungentrified inner city suburb. Its students, many of whom are from language backgrounds other than English, are becoming increasingly school resistant as they progress to the senior classes. Their level of literacy skills are such that they are not meeting with success in the high stakes assessment at the end of their secondary schooling. Students appear to be having difficulty in determining their identity as they struggle to live in two different worlds, that of home and school; they believe that their employment opportunities, on leaving school, are few and limiting. The culture of the school is one where teachers behave in authoritarian ways and a hierarchical line management prevails. Female teachers have complained of sexual harrassment and younger boys believe themselves to be bullied by those in the senior school.

Wellford Valley Boys High School is similarly placed in a lower socio-economic community, with most students coming from language backgrounds other than English. Two years ago a new Principal was appointed. She established a teacher-mentor network, whereby the skills and strengths of the teachers in the school were identified and used as a resource for school planning and teacher professional development. She foregrounded student welfare as the lynchpin of school success and with a team of teachers (not necessarily senior teachers) re-designed the curriculum to focus on key competencies within and across subjects. She established a forum which met once a term with members of the community and student representatives to discuss the changes which were taking place. While, at this point, there have not been large changes in high stakes assessment outcomes, the school is now free of graffiti and students have been noted for their courteous behaviour towards visitors to the school.

Due to falling enrolments and state government policies, both Maladoch and Wellford Schools are being obliged to merge with local Girls High Schools or close. Using, among other electronic websites, the resources of EdNA, research the key elements of each of these educational environments and predict the nature of either the mergers or closures and their consequences for the students.

Scenario Set 2:

Chris' is a new teacher appointed to Clareville Primary School. In accordance with state policy he is preferred for employment on the basis of his aboriginality. Chris' brings to the school a rich knowledge of Aboriginal perspectives in the curriculum, he is a talented musician and gained satisfactory grades throughout his pre-service teacher education at a local and well respected regional university. His practicum experiences have been mainly in the upper primary classes. On arriving at Clareville (which has had few new appointments in recent years) the only class which had not been assigned a teacher was a Year 1 class, with a large proportion of children who had not broken through to literacy. Chris is uncertain about how best to approach the teaching of literacy in his class; he is also aware that there is a strong press to higher performance standards in the school which is not meeting state benchmarks in literacy in Year 3. Some teachers in the school are resentful of Chris's appointment, believing that they would have been better served by a graduate who could demonstrate high levels of competence in teaching literacy in the junior classes.

Mayo is also a beginning teacher. She was delighted with her appointment to Montvilla Primary School which she saw as well deserved as she had graduated with Honours from a city university and like Chris is a talented musician. Mayo had come to Australia from Burma. Her family were refugees and had found it a great struggle to support their daughter through university. Mayo speaks with accented English and has high expectations that her students will work hard and respect her. Her appointment to Montvilla was as a targeted graduate who had demonstrated high levels of achievement in both the practical and theoretical domains. Because her honours thesis had been directed towards the provision of education for gifted and talented students, she had been allocated a team taught multi-age g & t class where she was a member of a team of three. Mayo is not happy at Montvilla. Her co-teachers believe that they had to *earn their stripes* to be appointed to the special class and that Mayo has not served her apprenticeship. The children are high spirited and Mayo is having classroom management difficulties.

Chris and Mayo are both within a region which has just established a mentoring program for new and beginning teachers. As yet the program has not developed key principles for how to best support such teachers. Using, among other electronic websites, the resources of EdNA, research federal and state policies with respect to the employment of new and beginning teachers and predict whether either or both of these teachers will ultimately be successful and the ways in which their needs may or may not have been met.

Scenario Set 3.

Following a change of government in the State of Vulcan, it has become essential to develop a new homework policy across the state. Along with its *Get Tough on Youth* policy the incoming government has declared that each child will be given at least a half an hour's homework a night (K-3) one hour's homework a night (Yrs 4-7) and one and a half hour's homework a night (8 - 12). Furthermore, they have designated that at least two nights per

week be allocated 'basic skills' homework; although they have not defined what these skills are. They have charged their education bureaucracy with ensuring that a policy emerges which is *isaccountable to parents and the wider community*. The teachers' unions have declared the policy, which is yet to be unveiled, as unworkable and are threatening industrial action. A large educational international consortium has declared that it can deliver the policy and improved educational outcomes, if the government will invest in a lap-top computer for each student, the costs of which can be recovered over three years by leasing arrangements.

Austral State, on the other hand, has a government mid-way through its fourth term of office. While its educational policies appear to be yielding results comparable, if not better than its neighbouring states, it is apparent that a policy selling point is required. Having read a recent study of formative assessment and its impact on learning outcomes, the Minister has decided that all teachers in government schools, both primary and secondary, need to have their formative assessment skills improved. He has established a think tank with representatives from the State's universities (including their centres for the advancement of teaching and learning); the leading professional associations covering English, Science and Maths teaching; the National Schools Network (NSN); and the Australian Education Union. He has indicated that if there is to be a professional development program it will have to be at the cost of a previously signalled intention to reduce class sizes.

Using, among other electronic sites, the resources of EdNA, and a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, investigate the potential of these two policies to be realised in the education domain.

It is hoped, that as a result of the wide distribution of this paper, that teacher educators will test these scenarios, using the resources of EdNA and provide feedback to the project.

It is also intended, through the structure of the ancillary website, to take one such scenario and model ways in which the information could be collected.

The Ancillary Website: - 'Learn EdNA':

As a result of the cultural investigation of the EdNA Directory it has become clear that teacher educators and their students would be well served by having access to a set of tools which will enable them to find their way into the potentially rich information resources of the DEETYA internet site. To this end an ancillary website 'Learn EdNA' is being created and tested in the context of teacher education.

'Learn EdNA' is being designed to enhance accessibility to EdNA recognising that there is a range of users from first time neophytes to highly web literate regular users. The site will enfold both text and images and include a number of guideposts with suggestions and hints regarding strategies. It will incorporate a familiarisation tour, exemplars, and challenges to the user. It will be designed to enable feedback from users regarding its effectiveness, It will both support and challenge users. It will engage users in learning that is both experiential and experimental (Green & Bigum, 1996).

Conclusion:

The purpose of this paper has been to generate discussion among teacher educators. It's degree of effectiveness can only be judged following that discussion. The paper has already formed the grounds for debates among the research team based at Deakin University. Teacher educators with principal responsibility for technology education at the University of Western Sydney, Macarthur, and Griffith University, Gold Coast, have also had access to draft versions and have offered advice. It was presented at the Australian Teacher Education Association Annual Conference in Melbourne, in early July, in conjunction with work in progress on 'Learn EdNA'.

The process is an iterative one. It is to be hoped that the paper will be remade as the community of practice, itself, becomes engaged and adds to our body of knowledge regarding real questions to which EdNA is an answer.

References:

Albion, P. (1996). 'Student teachers' use of computers during teaching practice in primary classrooms', in *Asia Pacific Journal of Teacher Education*, 24 (1) pp. 63 - 73.

Bigum, C. (1997). 'Teachers and computers: In control and being controlled', in *Australian Journal of Education*, 41 (3) pp. 247 - 261.

Burbules, N. (1997). 'Web publishing and educational scholarship: Where issues of form and content meet', in *Cambridge Journal of Education*, 27 (2) pp. 273 - 282.

Burbules, N. (1998). 'Misinformation, malinformation, messed up information, and mostly useless information', in DEETYA (Eds) *Digital Rhetorics: Literacies and Technologies in Education, Volume 3*. Canberra: DEETYA pp. 109 - 120.

De Geus, A. (1988). 'Planning as learning', in *Harvard Business Review* 2 pp. 70 - 74.

Department of Employment, Education and Training (DEETYA) (1998), *Digital Rhetorics: Literacies and Technologies in Education, Volume 1*. Canberra: DEETYA.

Downes, T. (1998) Personal correspondence. University of Western Sydney, MacArthur Campus.

Employment and Skills Formation Council (1995). *Converging Communications and Computer Technologies - Implications for Australia's Future Employment and Skills*. Canberra: Australian Government Printing Service.

Green, B. (1997), *Interfaces: English and Technology*. Keynote address at the State Conference of the English Teachers' Association of Queensland. Brisbane, 23rd August.

Green, B. & Bigum, C. (1996). Hypermedia or Media Hype? New Technologies and the Future of Literacy Education. In G. Bull & M. Anstey (Eds.) *The Literacy Lexicon*. Sydney: Prentice Hall, pp. 193 - 206.

Hodas, S. (1996). Technology refusal and the organisational culture of schools. In R. Kling (ed.) *Computerisation and Controversy: Value Conflicts and Social Choices*. (2nd ed.) San Diego: Academic Press, pp. 197 - 218.

Jungermann, H. & Thuring, M. (1987). 'The use of mental modes for generating scenarios' in G. Wright & P. Ayton (Eds.) *Judgment Forecasting*, Chicester: Wiley.

Kemp, D. (1996). *Education Network Australia: An Overview*. Keynote address at the Asia Pacific World Wide Web Conference. Hong Kong, 27th August. (<http://www.deetya.gov.au/apweb96/hongkong.htm>)

Lakoff, G. (1987), *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago: University of Chicago Press.

Mason, D. (1994). 'Scenario based planning: Decision models for the learning organisation', in *Planning Review* 22 (1).

Matthew, D. & Zeitlyn, D. (1996). 'What are they doing? Dilemmas in analyzing bibliographic searching: cultural and technical networks in academic life', in *Sociological Research Online*, 1 (4)
<<http://socresonline.org.uk/socresonline/1/4/2.html>>

McCorduck, P. & Ramsay, N. (1996). *The Futures of Women: Scenarios for the 21st Century*, Boston: Addison Wesley.

McLuhan, M. (1972). *The Medium is the Message*. London: Penguin Books.

Moon, B. (1997). 'Open learning and new technologies in teacher education: New paradigms for development', in *European Journal of Teacher Education*, 20 (1) pp. 7 - 31.

Rosen, L.& Weil, M. (1990). 'Computers, classroom instruction and computerphobic university students', in *Collegiate Microcomputers*, 8, pp. 275 - 283.

Russell, G. & Bradley, G. (1996). 'Computer anxiety and student teachers', in *Asia Pacific Journal of Teacher Education*, 24 (2) pp. 245 - 257.

Selinger, M. (1997). 'Open learning: electronic communication and beginning teachers', in *European Journal of Teacher Education*, 20 (1) pp. 71 - 84.

Star, S. (1995), *The Cultures of Computing*. Cambridge, Ma.: Blackwell.

Taylor, R. (1980). *The Computer in the School: Tutor, Tool, Tutee*. New York: Teachers College Press.

Turney, C. & Wright, R. (1990). *Where the Buck Stops*. Sydney: Sydney Academic Press.

Wilkinson, L. (1998). 'How to build scenarios',
at <http://www.hotwired.com/wired/scenarios/build.html>