

**Education for Sustainability through Secondary School Knowledge
Networks: Policy dilemmas**

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Prepared by

Fran Steele and Professor Michael Singh

Centre for Education Research, University of Western Sydney

Introduction

Secondary schools in Australia are currently expected to provide vocational education and training (VET) and learning about sustainable development to students. This paper considers the possibility that existing knowledge networks could provide a vehicle for creating articulation between Education for Sustainability (EfS) and VET in the educational environment of secondary schools. Debates about this type of articulation are examined, and a study of networks involved in knowledge exchange with secondary schools is reported.

The possibility of common ground between Education for Sustainability (EfS) and Vocational Education and Training (VET) is considered by Goldney, Murphy, Fien, & Kent (2007). Their emphasis is on development of policy at the national level. Greater overlap between these two sectors and the incorporation of sustainability principles into VET in Australia is recommended. Links between VET and EfS are also advocated by Arenas (2008) who proposes “the use of productive learning as a foundation for a well rounded education that breaks down the nefarious dualism of modern education” (p. 377). He reports a case study of a Columbian school that links vocational learning with principles of sustainable development. Arenas (2008) suggests that within vocational education the wellbeing of society should be considered and students should be asked to consider the social implications of the work.

Incorporation of environmental education into mainstream subject areas was criticised by Gruenewald (2004, p. 71) who suggests that “its institutionalisation within a general education works against its own socially and ecologically transformative goals”. That is, care has to be taken that in finding common ground one agenda is not overwhelmed by the other. Within VET the driving force remains economic productivity and skills development for a knowledge economy (Arenas, 2008; Mazzotti, Murphy, & Kent, 2007). Integration of EfS into VET has to be “flexible, adaptive, interdisciplinary, collaborative, experiential locally relevant, value oriented and future, action and learner dependent” (Mazzotti, Murphy, & Kent, 2007, p. 12). In the future it may also be worthwhile to consider the possibility that VET could be integrated into EfS.

Finding the common ground between EfS and VET can be seen as a pragmatic response to immediate issues of ecological damage. It can also be regarded as part of a healing of the social divisions which have exacerbated the ecological problems of the planet. At the level of philosophical change Skolimowski (1992) argues for an eco-philosophy which will heal the rift created by fragmentation of knowledge. In his view “we need to remove any spurious dichotomies and distinctions, for they are often at the root of alienation in the present day world” (p.79). The field of ecopsychology can be described as committing itself “to understanding people as actors on a planetary stage who shape and are shaped by the biospheric system” (Roszak, 1995, p. 15). Closing the divide between the material world and the environment is regarded as essential for healing both humanity and the biosphere (Macy, 1995; Shapiro, 1995). The divide between VET and EFS might be seen as symptomatic of a larger fragmentation. Mazzotti, Murphy, & Kent (2007) suggests that “James Lovelock’s Gaia theory, that the earth is a complex organism with processes continually adjusting through complex feedback processes also entered the psyche of 20th century humans”. This view may be optimistic,

but it informs their subsequent discussion of the need to find a place for EfS within VET (or VET within EfS).

This paper places a study of secondary school knowledge networks within this wider debate about the dualistic approach to EfS and VET in modern schooling. It is part of a larger study investigating the development of knowledge networks in one local government region of urban Sydney. The purpose of that study was to consider the totality of organizational relationships experienced by schools, an experience which Fullan (2000) describes as chaotic. The question addressed by the study was What are the structural and relational aspects of social capital that enhance intellectual capital gain for secondary schools? There are many case studies that illustrate the benefits of successful collaborations (for review see Sanders (2003)). Mature partnerships with industry or local agencies can enhance learning (Kilpatrick, Johns, & Mulford, 2003; Scales et al., 2005). This can be interpreted to mean that developing more such partnerships increases knowledge gain by the school.

Secondary school links with organizations can be conceptualised as having the ultimate aim of increasing the intellectual capital of the school (Hargreaves, 2001). Organizations increase their advantage by accruing intellectual capital, which in turn is related to social capital (Nahapiet & Ghoshal, 1998). The assumption is that links such as school partnerships involve transfer of socially embedded knowledge through development of relationships between staff students and organizational representatives. That is, schools are part of networks of social relationships of which the aim is the transfer of knowledge. These knowledge networks are shaped by the context in which they are embedded, which in turn is related to policy regarding schools and partnerships.

Social capital is a contested concept (Koniordos, 2008). It has been used to measure the value accruing through social connections for individuals (Portes, 1998), societies (Putnam, 2000) and organizations. Nahapiet and Ghoshal (1998) argue that social capital can have both structural and relational components. This paper is concerned with components of social connections that facilitate knowledge transfer between organizations. Two facets of network structure that have been postulated to increase social capital are closure and structural holes (Burt, 2001). In some contexts the development of dense cross-links (closure) confers advantage, for example strong networks are shown to support children in disadvantaged neighbourhoods (Coleman, 1988; Crowder & South, 2003). In other contexts advantage is gained by forming bridging ties to non-redundant sources of knowledge (Burt, 2001).

Network analysis offers a systematic way of summarising and reporting the totality of social connections within a bordered sample (Hanneman & Riddle, 2002). A network analysis of secondary school inter-organizational links in one local government area in Sydney, NSW was used to determine social and intellectual capital. This study used qualitative methods of data gathering and analysis to examine the configuration of networks and the motivation and benefit of these networks (Monge & Contractor, 2003). Data was gathered by interviews with school and organizational representatives, collection of documents relating to collaborations; examination of websites and observation of events. Both school egonets (links centred on one school) and the extended knowledge networks within the region were identified. Some contingency factors in the development of networks are reported.

This paper also details some of the policy texts within the Australian context that recommend links between secondary schools and community. These texts could be grouped into three areas, EfS, VET and school-family related policy discourses. Within the study region EfS VET and welfare related networks were identified, and the corresponding policy discourse appeared to shape these networks. Both networks and policy discourse illustrate the “public policy divide” noted by (Mazzotti, Murphy, & Kent, 2007, p. 11). The consequences of this separation are discussed in the light of current debates about integration of VET and EfS.

The dilemma for policy is to reconcile the demands for increased partnership with schools with the diminishing resource of time. Both EfS and VET networks demand valuable time for more connections, or more strategic connections. Currently schools must manage these demands. Finding common ground between separate policy discourses might be one way to reduce the pressure and create a balance between forms of intellectual capital. We also ask, *Could knowledge networks involving secondary schools provide a vehicle for creating common ground between EfS and VET?*

Methodology

Analysis of policy texts

Policy texts relating to school community relationships were analysed using the interpretive policy analysis approach of Yanow (2000), who acknowledges a relativist paradigm. Yanow (2000, p. 23) states that interpretive policy analysis:

Treats artefacts conceptually as texts, as a way of understanding their meaning to their creators (“authors”) as well as to other policy relevant publics (“readers”), thereby explaining how a policy event or artefact makes sense in a particular context.

That is, texts can be analysed as a means of inferring the intention of policy authors and as a way of explaining how they might be received by the ‘interpretive community’ (Yanow, 2000, p.17). The analysis of policy texts was undertaken as a way of understanding the meaning given to school community links by the authors of policy.

Texts were identified through web searches using keywords and based on a reading of the literature about school-community partnerships. Emphasis was placed on texts relating to links identified in the study. These were within the areas of VET, EfS and student welfare. The texts included were those current at the time of the fieldwork (2007). The relevance of these texts was substantiated by the network analysis.

Texts were analysed by a systematic coding procedure analogous to that used for other types of qualitative analysis (Cresswell, 1998; Silverman, 2001). Miles and Huberman (1994) provided the framework for coding which is summarised as:

- descriptive coding (labeling units of meaning)
- interpretive coding (deciding on the meaning behind these units)
- pattern coding-inferential statements about overarching themes.

During the coding, memos were created that dealt with issues of method or related to general points about policy process, many of which are covered in the introduction above. Attention was also paid to the words used in these documents. Frequency of appearance

of words such as collaboration and partnership were used to gauge the tenor of the interactions being promoted. Subsequent to the full data analysis, the policy analysis was revised to take into account findings about the impact of policy on actors within the study. Themes were re-organised to dovetail with the themes from the analysis of school-organizational links. In both sections central themes are;

- motivation: why form links?
- facilitators and inhibitors: how can links best be formed and maintained?
- benefits to schools and community.

Network analysis

Qualitative data gathering and analysis methodology were also used within the context of network analysis (Monge & Contractor, 2003). Egonets were constructed for secondary schools within one Sydney Local Government Area which was given the pseudonym Village (VLGA). Hite and Westerly (2001, p. 277) define the egonet of a firm as “its set of direct, dyadic ties and the relationship between those ties, with the firm at the center of the network and as the focal actor”. The region encompassed 19 secondary schools. All were invited to participate and 11 schools agreed. Within the egonets distinct areas of knowledge exchange (knowledge networks) could be discerned. Interviews of representatives of school-nominated organizations were used to extend these networks, identifying knowledge flows within the region.

Data about ties was collected through interviews (47) with school principals, school staff involved in ties, and representatives of organizational partners (Table 1)

Table 1 Summary of Interviews Conducted

Organization (type)	Participants (roles)
Georges Street High School (Govt comprehensive, GC)	Principal, 5 teachers (VET coordinator, Careers Advisor, Support Unit teacher, Deputy Principal, Head Teacher Science)
Village High School (GC)	Principal, VET coordinator
Newlands High School (GC)	VET coordinator
Roper High School (GC)	Principal, 2 teachers (Head of Welfare, TAS)
Munroe High School (Govt selective, GS)	Acting principal, Careers Advisor
Stonehaven High School (GS)	Deputy principal, Teacher (Support Unit)
Peter Downs College (catholic systems)	Deputy principal, VET coordinator
Lakeland Special School	Principal
Cullen Anglican School (independent, I)	Principal, 5 teachers (Head of Science, Deputy Welfare, Careers Advisor, VET coordinator, Business Studies teacher)
Ryland College (I)	Principal, 2 teachers (Streamwatch coordinator, VET coordinator)
Leighton College	Community liaison officers (2), VET coordinator

NSW Department of Education and Training Employer	5 staff, (VET consultant, VET director, EFS regional coordinator, TAFE officer, Environment Centre coordinator)
Village Shire council	5 representatives(Village Chamber of Commerce (2), TG-Industries CEO, VLCP CEO, Regional Industry Careers Advisor)
Other	4 staff (Mobile Youth Worker, Community Development Officer, Environment Centre Coordinator, Local Shires Association representative)
	Streamwatch liaison officer, Rotary representative

All interviews were voluntary and participants were provided with information about the nature of the project and dissemination of the findings. Documents provided by the organizations, and websites related to ties were used to corroborate the existence and nature of ties. Each tie was validated by at least two sources. Summary tables of all nodes and ties identified were constructed and used to create a ‘vna’ file, which was used as input for the Netdraw graph visualisation software (Borgatti, 2002).

Interviews and other sources were also coded for themes relating to motives, facilitators and benefits of ties. A process of open coding was used in the first instance, followed by a second round of code categorisation as recommended by Miles and Huberman (1994). Theories of social capital were then used to further analyse the findings, using a reflexive analysis (Alvesson & Skoldberg, 2000).

Policy Impacting on Secondary School Networks in NSW

Sixteen policy texts advocating the development of links between schools and the community were identified. Table 1 lists the relevant texts. These were categorised according to knowledge area, as EFS, VET and school-family connections. A figure has also been assigned as an estimate of the relative significance of the discourse on school community relationships within the text. The scale used is:

1. whole document devoted to school community relationships
2. relationships discourse is one of several key elements
3. discourse is one of many goals

Table 1 lists the relevant texts.

Table 1 *Summary of Policy Texts*

Policy sphere	Text	Relative Significance
Vocational Education and Training	Australian National Training Authority (2004)	2
	MCEETYA (2001)	2
	Board of Vocational Education and Training (2005)	2
	Department of Education Science and Training (2007)	1
	New South Wales Department of Education and	1

	Training (2004a)	
	New South Wales Department of Education and Training (2006)	2
Education for Sustainability	Department of Heritage and the Environment (2005)	2
	Department of the Environment (2008)	2
	New South Wales Council on Environmental Education (2006)	3
	Sustainable Schools NSW (2008)	2
	Department of Heritage Water and the Arts (2007)	2
School-Family Connections	Australian Council of State School Organisations (2004)	1
	New South Wales Department of Education and Training, (2004b)	1
	NSW Department of Education and Training (2005)	1
	Department of Education Science and Training (2006)	1
	NSW Department of Education and Training (2003)	1

These texts are indicative of the presence of a discourse related to school links within the wider scope of school policy. In most texts identified this discourse constitutes at least one of the key elements of the overarching policy.

One example, the national policy on educating for a sustainable future, emphasises the importance of ‘whole school’ approaches (Department of Heritage and the Environment, 2005, p. 7). One of six components of the whole school is ‘networks and partnerships’ (Department of Heritage and the Environment, 2005, p. 7). The recommendation under this component begins with:

Many environmental education developments are best achieved through collaborative action with the local and broader community. This might include partnerships with educational organizations, local councils, businesses, industry and community groups and networks (Department of Heritage and the Environment, 2005, p. 12).

The overall emphasis in this text is on collaboration that will enable an interactive style of learning.

Similarly, the NSW government text relating to VET presents as one strategy “assist training providers to build and maintain partnerships with local employers, community groups and employment agencies” (Board of Vocational Education and Training, 2005, p. 19). TAFE and schools as training providers are administered through the New South Wales Department of Education and Training (NSW DET). As part of their policy for 15-19year olds, this organization dedicate one of the three sections to “strengthening connections” and indicate “we need to strengthen our existing external relationships and identify new partnerships at both the system and the local levels” (New South Wales Department of Education and Training, 2006, p. 12). This text asserts that

collaborations currently “provide active, substantial and constructive support to schools across NSW” (New South Wales Department of Education and Training, 2006, p. 2). The text also states that:

Along with other community relationships, school business relationships strengthen community awareness and participation in the education process and contribute to innovation and high achievement in public schools. (New South Wales Department of Education and Training, 2006, p. 2)

These examples illustrate that within the NSW education system emphasis is given to partnerships within the vocational education sector. That is, the connections promoted are formal and involve organizations rather than just links between individuals.

The findings are consistent with those of Seddon, Billett, & Clemans (2005, p. 567) who state that “social partnerships are increasingly prominent in public policy and education”.

Each of the groups of policy texts exhibit a motivation of increased learning outcomes through school partnerships. For example, the NSW government EfS policy text includes as one of seven outcomes “expansion of partnership and network activities between environmental education providers that enhance the quality and reach of their programs” (New South Wales Council on Environmental Education, 2006, p. 15). The terminology used in this excerpt resembles that of the national document quoted above. The NSW DET environmental education policy for schools lists two curriculum focus areas, one of which states that learning opportunities outside the classroom include

- Using special environmental events, days, celebrations and projects to complement learning in the curriculum
- Involving students in investigating, maintaining and improving the local environment
- Using the community to investigate practical and real-life situations
- Incorporating outside programs and services into school programs to bring learning to life. (NSW Department of Education and Training, 2001, p. 13)

The emphasis is on working with ‘real life situations’ and bringing ‘learning to life’, that is, on experiential learning. This learning outside the classroom involves collaboration with other community groups. In a similar vein a National VET strategy text states that “partnerships with other sectors, particularly regional development, Indigenous and community services, help improve learning pathways” (Australian National Training Authority, 2004, p.17). A goal of the NSW public system focus on family partnerships is creating a learning community, (NSW Department of Education and Training, 2003, New South Wales Department of Education and Training, 2004 #347, NSW Department of Education and Training, 2005 #341). In these texts partnership and interagency collaboration are seen as ways to create a unified entity that enhances learning. One text describes the milestone of a learning community as “school and community becomes one integrated source and advocate for learning and development” (New South Wales

Department of Education and Training, 2004b, p. 4). One emphasis of policy is to build connections to enhance the learning of the wider school community.

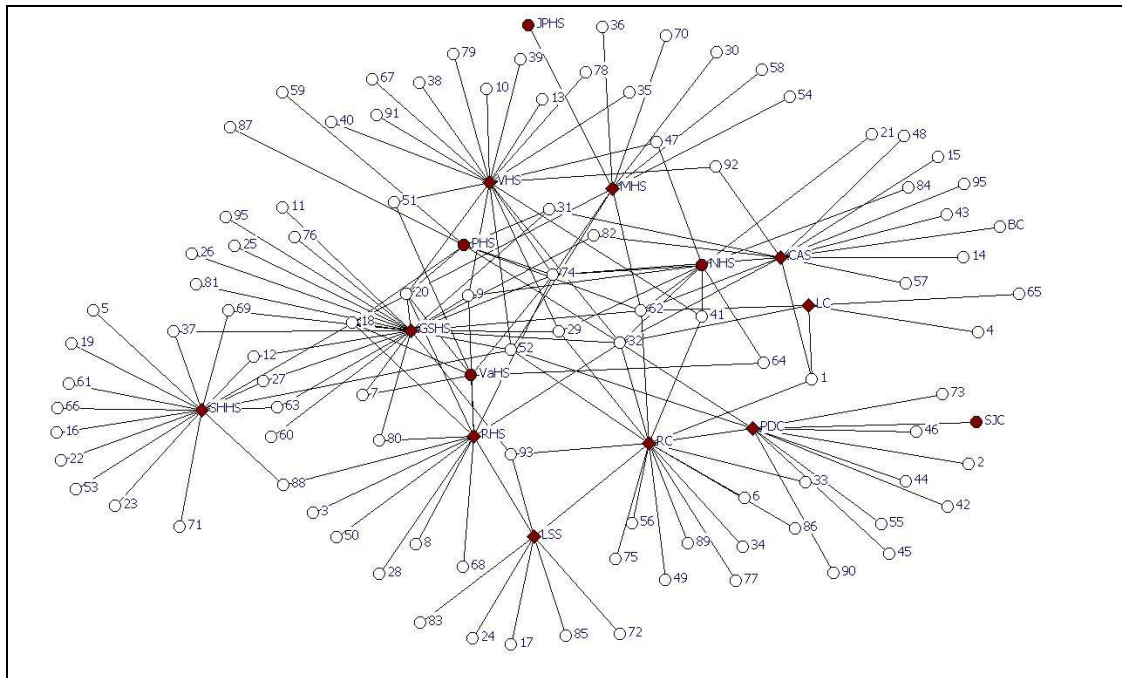
The overall outcome of the existence of these texts can be regarded as a policy motivation for increased intellectual and social capital involving schools. The combined effect is to promote an increase the number of links and possibly in the strategic nature of these links. That is, to increase social capital through density of links (Coleman, 1988; Putnam, 1995), or by formation of links to non-redundant sources of knowledge (Burt, 2001).

What is also notable is that these texts are part of separate levels and lineages of policy. Goldney, Murphy, Fien, & Kent (2007, p. 25) state 'Education for sustainability in Australia is influenced by three levels of policy, leading to a divided and random approach'. This division in levels is also noticeable with regard to school partnership and extends to VET and school-family links. For example, in the area of VET the Federal Government funds Local Community Partnerships to find work placements and provide careers advice, activities overlapping with NSW VET consultants and school-based careers advisors. A separation between EfS and VET policy is also apparent in relation to partnerships with schools. Both discourses are calling for more links, with the aim of increased learning, but these demands are delivered by different departments of government and without reference to the possibility of combined goals. These policy texts could be considered examples of what Goldney, Murphy, Fien, & Kent (2007, p.24) label "the great policy divide".

Inter-organizational Links of Secondary Schools in Village LGA

Within the policy landscape analysed above the schools in Village LGA had developed a multiplicity of links. Figure 1 shows the combined egonets for the schools.

Figure 1. *All Links Made by Secondary Schools in Village LGA*



Legend: Secondary schools in the sample dark (magenta) diamond, secondary schools in LGA magenta, other organizational links clear circle.

The main purpose of Figure 1 is not to elucidate the nature of individual links but to illustrate the number and complexity of the links within the LGA. The links include VET related (16, 5, 76, 81), EfS related (87, 59, 47, 18) and welfare related (17, 24, 57, 30) relationships. There are also relationships in specific curriculum areas that do not fall into any of these categories. The number (degree) of links per school ranges from 5-25. The sample included government and non-government schools, and the variety of types of links was found to be similar in both.

The main theme derived from the analysis of interviews with stakeholders in schools and in the community was that of the pressure on time within schools to develop and maintain these links. This found expression in issues relating to having the staff to do the work; having the money to make it happen, and dealing with a range of risk management issues. Respondents in schools, and within organizations working within schools, agreed that the curriculum was very full. There were a number of interacting pressures that contributed to this lack of time. These are indicated by a quotation from one head teacher of science in a government comprehensive school who said:

They do keep sending me environmental stuff, environmental network stuff, but I am really not in a position to take that up, and haven't found anyone in the department who is willing be party to that....We cant take it on board because by the time the push is on for reporting, the push is on for quality teaching, the push is on for new initiatives in everything and this is an external body that you would have to devote quite a bit of time and effort to, and you cant devote time and effort to everything. You just, well in my list of priorities, I'm sorry it just doesn't even get on the list.

We don't deal with it, we can't and we don't even reply. We are very full on, but it is the way schools are they just can't take any more (Don, said with weariness and conviction).

Many respondents reported the pressure on teacher time due to the many demands of teaching. Some were demands of the core curriculum, which largely doesn't promote partnerships. Some were demands of initiatives that are current in NSW schools. Other participants noted the need to take students outside of school for activities and the demands that this made on paperwork. The CEO of the local community partnership noted:

But a normal comprehensive school that doesn't fit into any of these categories (special funding), you don't have a lot of money and time available to dispense amongst the staff, so you are really asking above and beyond of their time... Like we would like to do that freight one (Adopt a School program) again now, and the employer is quite keen, but it is just getting another school involved. Because it is taking a group of kids them away from their studies for several weeks in a row. The kids at (school) spent an hour of school time then they did an hour after school, and they were willing to do that. In the busy life of school it is just getting that to happen. There are permission slips, supervision, who is going to pick the kids up if they are late. If you are going to do an industry visit you have to do risk management, there is so much paperwork. So it is really difficult to get something to happen (Sarah).

Those working with schools in welfare, EfS and VET areas were aware of the problems of time for their clients. There was general agreement that making relationships was time consuming and moving students into the community was time consuming. Often these activities had to be done outside of school time. They also caused disruption to normal lessons, which was resented by other teachers. Travel to the venue was also reported as a problem in many cases.

Increasing pressures on school time that inhibit community based learning have been reported by others (Fullan, 2007; Porter, 2006; Ryan, 2002). Porter (2006, p. 6) examines VET learning and notes as one of four key findings that:

The authors view is that long-term and adequate funding, restructuring of the school timetable and greater integration of community resources have the potential to generate increased efficiency in the delivery of school-based VET and enable multiple post-school pathways.

This author found that academic traditional pathways remain the norm and "are influenced by the structure of the school curriculum" (Porter, 2006, p. 6). Ryan (2002, p. 8) also notes the practicalities of sending students to work placements "timetabling work experience is difficult and students are often forced to make up missed schoolwork".

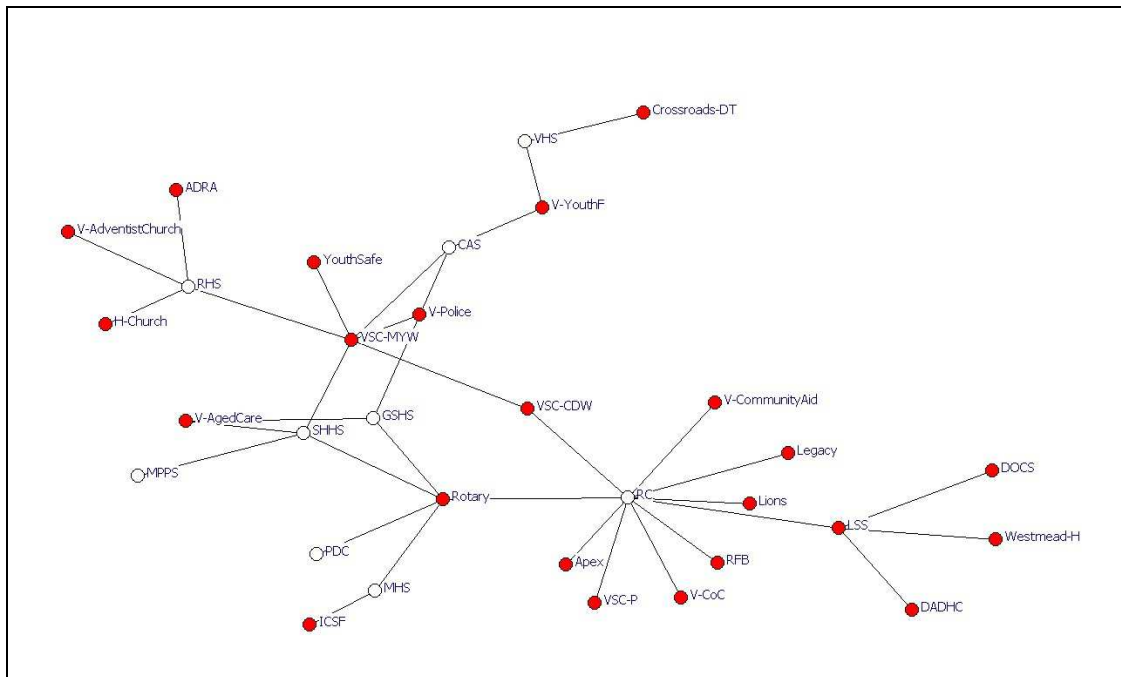
These researchers concur with the finding of this study, that learning through partnership is difficult within existing structures of schooling.

The demand of the community appears to be for social capital as measured by an increased number of links. However, these findings would suggest that there is a limit to the number of links that any one school can form and staff of the schools in the LGA felt they had reached this limit. Within the constraints of the timetable and curriculum the demands for links had been heeded up to a point but creating more links did not appear to be a viable way to increase social capital. This raises the possibility of increasing knowledge transfer to the school through creating more strategic links. This is to entertain the possibility raised by Goldney, Murphy, Fien, & Kent (2007) that if goals of VET and EfS could find common ground perhaps the number of individual partnerships in these areas could be interlinked. This possibility is discussed in relation to knowledge networks surrounding schools in the region.

Knowledge networks

Networks potentially allow a number of schools to access knowledge that has been developed by a number of sources to match school needs. One example is the Adopt a School programs offered by the local community partnerships (LCP) in VET. Employers combine with the LCP to create a program which can be accessed by a number of schools, such as the Freight Chasers program described by Sarah above. Another example is a local Council collaboration within Village LGA that brought together NGO's such as Gould League and Cumberland State Forest with the Department of Education Training Environment Centre coordinator, to develop a project on Birds as Indicators of Change. This program was offered through the councils Environment Calendar. It is not possible to describe here all of the projects that were being carried out within the LGA. The following three figures summarise the three knowledge networks identified.

Figure 4. *Welfare Network*



Legend: Schools-hollow circles, other organizations-red circles

These figures illustrate the existence of networks within the region. Such networks have the potential to offer schools knowledge that is developed with strategic purpose. The findings of the study were that the schools were underrepresented in the EfS and welfare networks when compared with the VET network. This is possibly not surprising as most schools offered framework VET subjects which mandate 70 hours of work placement (Evans, 2005). Work placement involved schools working with the LCP, which occupied a place of centrality in the VET network. The VET network also included a local careers advisors network which worked with most schools in the region (VCF) and a number of NSWDET VET consultants that facilitated links with other VET related organizations. The combining of curriculum, formal partnerships and informal links to employers resulted in a substantial networking involving schools.

By contrast, the EfS network was less established than the VET network. Some schools were linked through the Streamwatch program, which has been an enduring partnership within NSW. This program has strong policy support, being mentioned specifically as a desirable partner by two education systems' texts (Catholic Earthcare Australia, 2007; NSW Department of Education and Training, 2001). Most of the links were of less than one year duration. The Greater Sydney Environmental Network (GSEEN) network had been set up in response to policy on EfS. Its convenor explained:

Last year I worked to establish what we are calling an interagency network in support of environmental education. That is in response to the 2006-2009 Learning for Sustainability plan... The thread that runs through all of that is interagency support and cooperation. So as it was coming out we thought there was a couple of motivations there, trying to draw in other agencies to support what we are doing in our initiatives and what they can contribute, and also when those agencies like conservation national parks do some community work we can volunteer some of our resources. For instance (name) as a venue if they want to do some environmental education, not just with kids. (Charles, NSWDET)

The local Council and GSEEN were linked and these in turn were linked with State level organizations (Premiers Department, Local Shires Association) and environmental organizations (Gould League, Streamwatch). Connections beyond the school were potentially very wide ranging. Networks offered access to intellectual capital through strategic links to many sources of knowledge. This form of social capital could be said to be high within the region as a whole. However, the effectiveness of knowledge exchange depended on schools being part of the network. As the network was constituted at the time of the study, schools remained on the periphery. State schools were mainly linked by their connection to the NSWDET region and the implementation of school management policies under the environment policy (NSW Department of Education and Training, 2001). There were few programs in which students were actively engaged in EfS learning.

Many of the welfare links were also new. The Shire Council had hired a Mobile Youth worker to conduct safe partying workshops and manage drug education. This member of Council also participated in a resilience program (Getting Connected) run by one of the schools. Village Shire Council also ran a community development program and the community workers participated in two service learning programs run by schools in the district. More established links were those involving community organizations such as Rotary, and the local police. Policy in public schools in NSW shows general support for welfare programs extending into the community as evidenced in texts such as (New South Wales Department of Education and Training, 2004b; NSW Department of Education and Training, 2005). While welfare and EfS links had policy support within NSW DET, they did not have curriculum support. Participants in schools who ran programs such as Harmony, Getting Connected and service learning noted the imposition on their time, as did others in the networks. It is reasonable to speculate that within a context in which time is a scarce resource the mandated links will have preference.

Figures 1-3 also illustrate the lack of overlap between nodes in the networks. Schools are potentially a common node of all three networks, however this was rarely the case. When schools did appear in two networks the participation was mediated by different members of staff. The same students might do Streamwatch and a VET subject but there was little in-school connection between these two events, and they were run as separate programs. In some cases the same entity acted as a broker in two networks. Two examples are DET and the local Shire Council. Village Shire Council operated an EfS network and a welfare related network involving secondary schools. However, these activities were managed separately. Staff in these Council departments reported separate

goals and activities. Even within EfS the Shire Council had largely separate units for waste, water, bushcare and other forms of environmental education. As the Environment Centre coordinator reported:

That is the thing (coordination). I am rewriting Council's education strategy at the moment because it is not just me who delivers things, there is a waste education budget, an environmental health section delivers storm water education and other things, the communications department do school tours. So I am trying to collate all Council business as far as environmental education goes so we can get on top of it. (Ann)

There was an awareness within Council and other organizations that greater communication and dovetailing of activities was needed. However, this task took time.

The suggestion made here is that existing networks demonstrate potential for much greater interlinking that would facilitate a way of working with schools that reduced pressure on staff time. That not only is a meshing of VET and EfS desirable at a theoretical level, but the consequences of its separation are increased and sometimes overlapping demands on schools. If members of external networks were to recognize a value in dialogue and coordinate their programs to schools they could contribute to a combined EfS/VET agenda and meet the goal of increased community based learning in both areas. The same organizations (NSW DET, Local Council, State authorities) often have a separate presence in more than one network. This can be seen as problem, or as an opportunity to make integration happen quite rapidly and effectively. The involvement of local government in VET networks was recommended by Waterhouse, Virgona, and Brown (2006) and these bodies also have a role in many environmental programs such as bushcare and land management. Overall, this study indicates that links are present in a chain that could enable such a dialogue but the pieces remain fragmented. It is hoped that the overview presented here will assist those in policy to view the entire picture.

Figure 5 offers a diagrammatic representation of how the networks identified in this thesis might be linked to further facilitate a managed approach by schools and the systems that support them.

Figure 5. *Proposed Model of Network Linkage*

Figure 5 a *Current Situation*

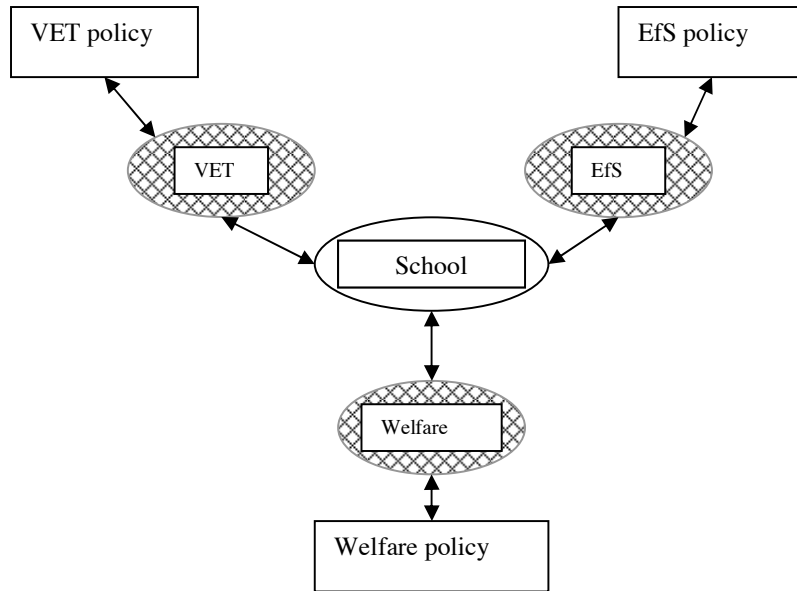
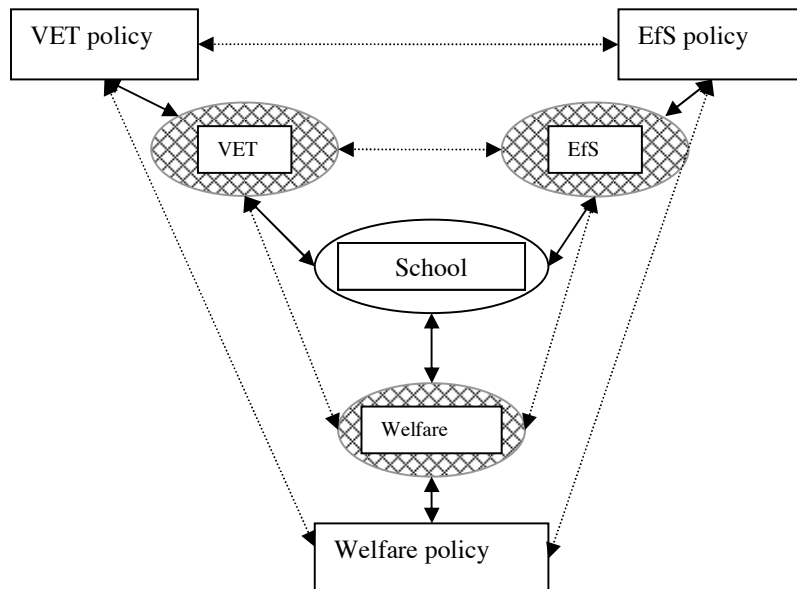


Figure 5 b *Suggested Model*



Legend: Dashed lines represent possible directions for dialogue

In the desired model brokers and agencies involved in the networks currently active or forming within the region might communicate about ways to create integrated involvement of various organizations and agencies in school learning. This amounts to a hybrid model of social capital forms, extending weak (brokerage) links in a climate of trust that creates an interconnected network, not of close local and family bonds, but of entities willing to exchange knowledge. It is proposed that this model could be effective in increasing the intellectual capital of schools through judicious use of social capital. The hope is that the time pressures on schools might be acknowledged and reduced as much as possible. The model is undoubtedly idealistic, and represents a target to work toward rather than a prescription for implemented policy. It is not restricted to the networks identified here, but could embrace other agencies concerned with schooling.

In many ways the schools are a microcosm of what Skolimowski (1992) sees as the problem for modern schooling and society. Fragmentation of knowledge areas, separate lineages of policy discourse and lack of interaction between members of networks may be symptoms of the way we view our world. The need is for unification. Firstly, as a matter of survival for those who work with schools and within schools, as the current level of demand for collaboration cannot be sustained. Secondly, as a means of reconciling competing demands such as VET for work skills in a competitive economic economy versus gaining knowledge that will enable frugality in the face of diminishing resources and conserve precious energy and water. The health of students, teachers and society may be considered to be at stake (Roszak, 1995; Shapiro, 1995). Only an integration of knowledge areas can enable eco-philosophy and eco-psychology to be understood and experienced by students in the future. Of course there are many practical difficulties. For example, how the workplace might become a place of learning about EfS if the mentors of skills have themselves no understanding of principles of sustainable development. These questions are the substance of the dialogue that is recommended at local and policy level. This may sound difficult yet the goodwill, rapport and personal trust was evident in the networks that already offered programs to schools.

Conclusion

The research has indicated that policy in Australia and NSW supports the formation of links between secondary schools and outside organizations. There is, however, a danger that may be interpreted to mean that social and intellectual capital will be increased if schools build more community links. This is not a viable approach to estimating social capital when links are limited by the structure of schooling, as is currently the case. To overcome the constraints of time, schools may need to create social and intellectual capital by accessing non-redundant sources that offer them strategic knowledge. Knowledge networks to support schools are proliferating within the local community, partly in response to policy. However, more work needs to be done to ensure that this effort on the part of the community is not wasted.

There appear to be areas of common ground that might be investigated. One possibility is the role of the local council, as an employer, EfS broker and welfare program provider. Another is the development of policy and programs within NSWDET where EfS may further overlap with VET. However, only half of the schools in the region were government schools and local solutions can only achieve so much. With Goldney, Murphy, Fien and Kent (2007) we would argue that dialogue at a State and National level

regarding partnership policy might assist local communities to enter into the processes and discussions that are needed. What is heartening is that many of the structures that could be interlinked are being developed in the region.

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