

# FROM CLOSED TO OPEN CLASSES – REPOSITIONING SCHOOLS TO SUSTAIN RURAL COMMUNITIES<sup>1</sup>

**Ken Stevens**

*Memorial University of Newfoundland*

## ABSTRACT

*Schools have always been central to rural communities, but today they are critical to the sustainability of social and economic life for people who live beyond major centres of population. The development of virtual structures and processes that enhance classes in and between rural schools has provided extended educational and, indirectly, vocational opportunities, for young people in local and non-local communities. The sustaining of small schools and their enhancement through inter-institutional collaboration can now be extended to rural community life. The digital future will be built on relationships between e-learning, e-government, e-business and e-health.*

The question guiding this paper, based on Australian and Canadian research, is how students graduating from small schools in rural communities make educational and career decisions regarding non-local environments about which many have little first-hand experience, but to which they must re-locate for further education and work. This pressing issue for senior students in rural schools is embedded in a larger question – how can governments provide learning opportunities for young people who live in small communities located far from major centres of population that match what is available to students in large urban institutions?

For some young rural school leavers the problem of what to do at the conclusion of compulsory education is confusing: where should they go? Which senior high school courses are required for enrolment in possible future higher education courses? For many rural students there is doubt that they will be able to compete with their urban counterparts who have been educated in much larger schools. Beyond these immediate concerns, many young rural school leavers face the issue of making personal sense of the non-local world that has, in some cases, never been directly experienced (Genge, 1996; Jarvis, 1990; Looker, 1993; Stewart, 2003; Tucker & Stevens, 1999).

The issue of some young rural people being more isolated from post-secondary school educational and career opportunities than others while living within the same community is not widely-recognized in spite of the social and educational implications this entails. A move from a rural to an urban community

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and school is not merely a physical change of location for students; it involves intellectual and emotional adjustments and rural school leavers can experience these in different ways (Bell, 1987; Chenoweth & Galliher, 2004). Young people within a rural Queensland community that was the focus of a small-scale study, outlined below, experienced geographical isolation in different ways (Stevens, 2007). Geography contributed to social differentiation by influencing their objective and subjective engagement with the non-local world, thereby shaping post-secondary educational and vocational outcomes (Stevens, 1998).

## **A CLOSED LEARNING ENVIRONMENT: RESEARCH IN RURAL AUSTRALIA**

There is an Australian policy issue in the provision of education in small schools in rural communities (Golding, 2001; James et al., 1999) that is common to many countries that seek ways of educating citizens who live far from major centres of population. In most societies it is too expensive to justify appointing full or even part-time teachers in specialized areas of the curriculum where there are very few high school students. The Queensland community that was the focus of the Australian study only provided full time education to year ten at the time of the research, after which students and their families had to make choices, particularly if further high school education was desired, or career opportunities were sought that were not locally available. Governments in Australia and other developed countries have often provided financial assistance for families of senior students in rural communities to enable them to complete their education in urban centres. Within some rural families, generations have been educated in boarding schools (Baker & Andrews, 1991). Other rural students spend considerable amounts of time travelling from their homes in small communities to schools in larger centres. A variety of electronic ways of providing education for the most isolated young rural Australians has included the School of the Air that has enabled many to receive instruction in their own communities from a central institution (Stevens, 1994a). In recent years e-learning has changed the nature of distance education for students in rural communities (Stevens, 2003). There have been many ways of providing education for rural Australian high school students and some of these have been innovative and have extended learning opportunities. However, at the conclusion of high school, which was at year ten for the rural students who were the subject of this study, decisions had to be made about what to do next. Enrolment in years eleven and twelve meant leaving home and resuming studies in a larger school in another place. Local employment opportunities were limited, particularly for girls, and traditional rural jobs such as jackaroos and jillaroos (male and female station hands respectively) were scarce. The transition from a small rural school to a larger urban institution was often complex, particularly for families with little experience of life beyond rural Queensland. It is at this point that some young rural Australians feel particularly isolated.

A study was undertaken to explore how young people leaving school in a rural community made their post year ten educational and career decisions. While education to year twelve is now locally available, at the time of the study, the most senior year of high school in the Queensland rural community was year ten. It was difficult to claim that rural students had educational opportunities equal to their

urban counterparts when they could not undertake full high school courses in their own community (Henry, 1989; McGaw, Warry, Varley & Alcorn, 1977). The study began with a broad question, identified three decades earlier by the Schools' Commission (1975) and the Commission of Inquiry into Poverty in Australia (1976; 1978) that young people in rural schools did not enter higher educational institutions in numbers proportionate to their urban counterparts. Partly on this basis, the Schools Commission identified rural schools in Australia as being educationally disadvantaged along with women, migrants and aborigines. The evidence for the claim that rural students were disadvantaged was acknowledged to be slight by the Schools' Commission and there was a call for research into the issue. A decade later the same issues were prominent in the provision of Australian rural education (Boomer, 1987; Commonwealth Schools Commission, 1988). The issues raised by the Commonwealth Schools Commission and the Commission of Inquiry Into Poverty formed the basis for an exploratory study into the question of the nature of rural educational disadvantage in a small and isolated Queensland community.

It was possible to identify four distinct social groups in the Queensland community of 1,800 people, located in the central north of the state: the graziers, a small middle class of professionals and managers, the working class whose wages came mostly from jobs on the shire council or railway and the aborigines. In addition to these distinct groups, there was a small transient population of shearers and agricultural labourers. Each group had a different relationship with the community. Because of the size of their holdings, graziers almost always lived well beyond the town where some kept a second residence in which their wives and school-age children lived during the week, returning to the station for weekends. Graziers were often prominent in civic affairs and many belonged to a members-only club that was considered by most local people to be exclusive. Very few people in the professional-managerial group had children at the local high school. This group included bank managers, teachers, nurses and visiting medical people. Most were too young to have children of high school age and those that did usually left the community before their offspring were old enough to be enrolled. The third group - the rural working class - was the most numerous in the local school while the fourth group, the aborigines, mostly lived on the edge of town and frequented their own church and pub. Unemployment was very high in the aboriginal sector of the community.

After spending some time in the rural community as a non-participant observer, the focus of the research emerged from an unlikely place - a petrol pump. The pump attendant commented on the university vehicle that the writer was driving and asked if he was the person currently studying the local school. He said he wished that his daughter could attend such an institution, but added that this would not be possible for financial reasons. He earned too much in his current job to be eligible for full government assistance, but too little to be able to afford full secondary education elsewhere. The family was both too rich and too poor to be able to afford post-compulsory education, in this case, education beyond year ten. They were too rich to be eligible for full government subsidies and too poor to be able to afford the difference between a partial subsidy and the cost of full secondary education beyond the community. At the time of this conversation the writer had spent long enough in the Queensland community to realize that it was both socially

and economically differentiated. The aborigines had their own government-funded pathways to further education, while graziers had long favoured boarding school education for their sons and daughters and most could, with the assistance of accountants, qualify for full government subsidies. Almost all of the students in the Queensland school were in neither of these categories. They were not aborigines and they were not the sons and daughters of graziers. They were members of the majority group in this community – the rural working class, about whom little has been written. How rural working class students perceived the non-local world where post school educational and most career opportunities were located, depended on their knowledge of and contact with other places. It also depended to some extent on the financial resources of their families.

The study used both participant and non-participant observation in the school and its community. Data were gathered by questionnaires and interviews with year ten students, their families, teachers, the principal, and selected members of the community (e.g. priests and business people). Data were recorded in note form and then analysed. A class of 30 year ten students was selected for study (boys N=14; girls N=16) and these were categorized according to their scale of social contact with the non-local world and their awareness of it. The scale of social contact with the non-local world provided an objective measure of the extent to which the 30 students had travelled beyond their community. Five dimensions were considered in classifying the scale of students: (i) Local: those who had never been beyond the local town and its environs (ii) NQ: those who had had contact with other towns in North Queensland; (iii) Qld: those who had travelled throughout the state of Queensland; (iv) Australia: those who had travelled to other parts of Australia and, (v) Australia+: those who had visited other countries. Students were asked about the nature and extent of their contact with extended family, peers and significant others in each of these five dimensions in categorizing them. For example, a student whose extended family, peers and significant others were all in North Queensland was identified as belonging to the second category.

As well as considering students' scale of contact with the non-local world, their perceptions of it were also examined through their "contexts of awareness." As in the case of scale of social contact, students were classified as: (i) Local; (ii) North Queensland (NQ); (iii) Queensland (Qld); (iv) Australia (Aust); and (v) Australia + (Aust +). Unlike the concept of scale, through which it is possible to consider objectively who a student has contact with, awareness contexts are subjective in that a student identified what information about the non-local world (in this case their educational and occupational possibilities) they had and the sources from which this was obtained. It was possible for a student to be low in scale of contact in that all his or her interactions were local, but high in awareness contexts because his or her understanding of the non-local world was extensive, coming from such non-local sources as newspapers, books, television and correspondence.

Those who were categorized as Local or NQ were classified as being low in terms of social contact while those who were in the other groups (Qld, Aust, Aust +) were considered to be high in terms of social contact. Because of the subjective nature of these judgements a colleague was asked to check the researcher's categories used in these classifications. After a detailed explanation of the study, the

colleague independently reached the same conclusions as the writer for all students in respect of both classifications (scale of social contact and scope of awareness contexts).

By bringing scale and awareness contexts together, four student "types" emerged. Type one students (N=12) were low in scale of social contact (defined within a radius of 160 kilometres to 240 kilometres of their home) and low in the scope of their awareness contexts (Lc&La). Type two students (N=9) were low in scale of contact but high in terms of awareness contexts (Lc&Ha), while type three students (N=9) were high in both scale of contact and awareness of the non-local world (Hc&Ha). It was not surprising that there were no type four students (Hc&La). The educational experiences and the outcomes of the group of 30 Year 10 students that was studied differed according to their student 'type', based on their scale of social contact and their contexts of awareness of the non-local world. The existence of type two students inherently posed the question how young people who were low in terms of contact with the non-local world could have a high awareness of it?

The post year ten educational and vocational choices that were made by types one, two and three students differed from one other. Of the 12 Type One (Lc and La) students, two chose professional occupations, one chose a white-collar occupation, three chose blue-collar occupations, five chose routine/unskilled jobs and one was uncertain about what to choose. Two-thirds of Type One students chose occupations of an unskilled, manual nature. Those Type One students who chose professional and white-collar occupations were all girls.

Most Type Two (Lc and Ha) students' career choices excluded routine/unskilled occupations. Over one-third both aspired to and expected to enter professional occupations. Of the nine Type Two students, four chose professional occupations, three chose white-collar occupations and two chose blue-collar occupations. Type Two girls' occupational choices were higher than those of Type Two boys; only one girl did not aspire to either a professional or a white-collar occupation.

The 9 Type Three (Hc and Ha) students' career choices covered a wider range than their Type Two counterparts. Three chose professional occupations, two chose white-collar occupations, three chose blue-collar occupations and one chose a routine/unskilled occupation. While Types Two and Three students differed from Type One students in that their overall career choices were either professional or white collar, Type One students (who were the most isolated in educational terms), made more limited career choices. Geographical isolation appeared to constrain the range and type of choices these students made.

In this study an attempt was made to ascertain whether the students believed that the vocational choice they aspired to matched their expectations. Almost all the boys in the study (86 per cent) provided a match between their occupational aspirations and expectations, but only 38 per cent of girls' aspirations matched their expectations. A partial explanation for this was reluctance on the part of many students, particularly those with least experience and knowledge of the non-rural world (Type One students), to leave the community. For some students, particularly those classified as Type One, any local job, even if it was unskilled and low-paid,

was preferable to migrating to an urban centre in search of further education or a career. For girls, there were very limited local employment opportunities, which compounded the difficulty of the post Year 10 decision. Reluctance to leave familiar surroundings is at best a partial explanation for the mismatch between the girls' aspirations and expectations. The very fact of living in a town with a strict sexual division of labour in which paid work was mostly undertaken by men obviously interacted with isolation and had a compounding effect.

Students were influenced in making their post-secondary educational and career decisions in several ways: by their nuclear and extended families, by their local and non-local peers, by the school and by significant others. There were differences between types one, two and three students in terms of the influences on their post year ten decisions. Only one of the types one and two girls cited her father as an influence on her post year ten decision, while four out of five type three girls did so. All Type One boys listed their father as an influence on the decision while type two girls were strongly influenced by their mothers. The school had very little influence on the post year ten decisions of type one boys, with only one citing this institution as an influence.

Compared to family and school influences, peers had a relatively small impact on students' post year ten decisions. Students were more influenced by local than non-local peers and were influenced only by peers of the same sex. Significant others influenced relatively few students. However, when present, the significant other influence was very strong because it came from people mostly in the chosen occupation of the student or from related media.

The educational aspirations (what students would like to do) and expectations (what students think they will do) about continuing school after year ten, were matched for 25 of the 30 students (83%) in this study. All type 1 students' aspirations and expectations were matched, but those for a third of the type 3 students did not do so. More girls both aspired to, and expected, a tertiary education than boys (56% of girls and 29% of boys). The occupational aspirations and expectations of students revealed a possible sex difference: whereas 86% of boys provided a match between their occupational aspirations and expectations, only 38% of girls provided such a match. In respect of the types 1 and 2 girls with a mismatch, the predominant trend was for expectations to be lower than aspirations. It appeared that for these students remaining in their rural community and doing any job was preferable to leaving and fulfilling their aspirations.

Eleven of the twelve type 1 students were able to identify their occupational expectations; 5 listed routine jobs, 3 blue collar, 1 white collar, and 2 professional occupations. This meant that 8 of the 11 students (73 %) listed occupations which are considered to be unskilled or manual skilled. Seven of the nine type 2 students were able to identify their occupational expectations: 1 listed a routine occupation, 1 blue-collar, 2 white-collar, and 3 identified professional occupations. Five of the seven type two students (71%) listed clerical, managerial or professional occupations. Finally, eight of the nine type 3 students were able to identify their occupational expectations; of these, 1 listed a routine job, 1 blue-collar, 1 white-collar, and 5 identified professional occupations. Six of eight type three students (75 %) listed clerical, managerial or professional occupations.

These results suggest that types 2 and 3 students can be distinguished from their type 1 peers in that they had expectations for employment generally considered to be higher in occupational status. It is difficult to distinguish clearly between types 2 and 3 students, but it appeared that type 3 students had a greater orientation towards professional choices, although the numbers involved were too few to draw a firm conclusion.

## **RESEARCH IN RURAL CANADA: AN OPEN LEARNING ENVIRONMENT**

The Canadian province of Newfoundland and Labrador is characterized by its predominantly rural social structure, its distinctive history and its unique culture. In the 1997-98 school year, the first year of the writer's term in Canada, there were 391 schools operating in the province of which 260, or 66%, were located in rural communities. Seventy of these small rural schools are all-grade (K -12), which means that they must offer a senior high school program. Three stages in the development of an open learning environment based on the development of virtual classes can be identified in this part of Canada.

### *(i) The Development of Web-based Science Courses*

The development of Advanced Placement (AP) web-based courses in Biology, Chemistry, Mathematics and Physics took place within a development team in each subject area. Advanced Placement courses are common in larger schools in Canada and the United States. They provide post-secondary level instruction for senior students in their final year of high school and are taken in addition to the normal high school curriculum. Many universities give credit towards first year courses depending on the level of AP pass that is achieved. A lead science teacher in each discipline was paired with a recent graduate in each of the disciplines of Biology, Chemistry, Mathematics and Physics who possessed advanced computer skills including web page design, Java and HTML. The lead teacher and the graduate assistant were advised from time to time by Faculty of Education specialists at Memorial University of Newfoundland in each curriculum area and, where possible, scientists from the Faculty of Science. The extent to which each web-based course was developed by a team of four people varied. Most course development took place through interaction between lead teachers and the recent graduates. Although at times professors had different opinions as to the most appropriate approach to the design of the courses, this model enabled the four courses to be developed over a sixteen-week summer recess period in time for the 1998-1999 school year.

Minimum specifications were adopted for computer hardware and network connectivity. All schools involved in the project had DirecPC satellite dishes installed to provide a high speed down-link. In most rural communities in this part of Canada, digital telecommunications infrastructures do not enable schools to have a high speed up-link to the internet. Appropriate software had to be identified and evaluated for both the development of the resources and the delivery of instruction within the Intranet. Front Page 98 was selected as the software package. Additional software was used for the development of images, animated gifs and other

dimensions of course development. These included Snagit32, Gif Construction Set, Real Video, and similar packages. Many software packages were evaluated and finally WebCT was selected. This package enabled the instructor to track student progress, it contained online testing and evaluation, private E-mail, a calendar feature, public bulletin board for use by both instructor and student, a link to lessons and chat rooms for communication between teacher and student. For real - time instruction, Meeting Point and Microsoft NetMeeting were selected. This combination of software enabled a teacher to present real-time interactive instruction to multiple sites. An orientation session was provided for students in June 1998, prior to the implementation of this project in September. Students had to learn how to communicate with each other and with their instructor using these new technologies before classes could begin.

*(ii) Teaching Senior Science in Open Classes*

In eight schools within the rural Vista school district of Newfoundland and Labrador, 55 students were enrolled in AP Biology, Chemistry, Mathematics and Physics courses. While AP courses are a well-established feature of senior secondary education in the United States and Canada, it is unusual for students to be able to enrol for instruction at this level in small schools in remote communities. It is rare to find high school students in small and remote communities anywhere in the world who are provided with instruction in university-level studies. In Iceland (Stefansdottir, 1993), New Zealand (Stevens, 1999a, 1999b) and Finland (Tella, 1995) there have been attempts to provide alternative models for the delivery of education to rural students. The Vista school district initiative challenged the notion that senior students in small schools have to leave home to complete their education at larger schools in urban areas. By participating in open classes in real (synchronous) time, combined with a measure of independent (asynchronous) learning, senior students were able to interact with one another through audio, video and electronic whiteboards. From time to time they met for social occasions and to spend some time with their science teachers in person.

The electronic linking of eight sites within the Vista School district to collaborate in the teaching of AP Biology, Chemistry, Mathematics and Physics created a series of open classes in rural Newfoundland. The creation of the Vista School District Intranet was an attempt to use information and communication technologies to provide geographically-isolated students with extended educational and, indirectly, vocational opportunities. This has been part of a broader pan-Canadian initiative to prepare people in Canada for the Information Age (Information Highway Advisory Council, 1997). The development of the Intranet within a single school district involved the introduction of an open teaching and learning structure to a closed one. Accordingly, adjustments had to be made in each participating site so that administratively and academically, AP classes could be taught.

Research into the organization of senior students who were independent learners in a networked environment in New Zealand (Stevens, 1994b) preceded the formation of the Vista Intranet in Canada. Independent learners in New Zealand



were found to learn effectively and were able to obtain satisfactory results in national examinations within an electronic network of small rural schools. In the New Zealand situation though, students usually had at least one teacher on site to assist with questions of an academic nature. In the Canadian Intranet, this was not always possible. A question facing teachers and researchers in the initial stage of the Vista Intranet was whether students who were not used to being unsupervised could cope with new freedom and accept increased responsibility for their learning. Students were unanimous at the conclusion of the Canadian school year, that to be successful in an AP on-line course, it was necessary to be able to learn independently, cope with a high volume of work and be willing to ask teachers and other learners questions as they arose (Stevens, 1999a).

It was recognized early in the 1998-1999 school year that a common schedule had to be adopted throughout the school district to allow students to interact with their instructors in the new Intranet. Unfortunately, this was not fully realized until after classes commenced, with the result some instructors had to repeat classes for small numbers of students. It is anticipated that in future there will be both asynchronous as well as synchronous teaching and learning within the Intranet. The initial plan was to allow for five on-line sessions and five off-line sessions. This schedule was not followed in all schools. On-line sessions were scheduled in the morning when network traffic was at its lowest point. Off -line sessions were scheduled in the afternoon.

### *(iii) From Closed to Open Teaching and Learning*

The province of Newfoundland and Labrador has a high rate of use of satellite dishes per capita and there are many schools in this province with Local Area Networks (LANs). As a province, Newfoundland and Labrador provided excellent opportunities for the development of these technologies. Students in the Vista Intranet were frequently subject to scrutiny by their peers as they responded through chat-rooms, audio, video and with their AP on-line teacher. The Intranet provided students with access to multiple sites simultaneously, as well as the opportunity to work independently of a teacher for part of the day. The need to prepare for classes before going on-line became increasingly apparent to both teachers and students if the open, synchronous, science classes were to succeed. The advent of the Intranet had implications for students who had to interact with teachers and their peers in a variety of new ways. The teaching of each of the four AP Science disciplines in the Vista Intranet took place within classes that were open between participating sites. Many students experienced difficulty expressing themselves and, in particular, asking questions in open electronic classes when they did not know their peers from other small communities. The organization of social occasions for students learning science in open classes in the Intranet helped overcome these problems. As students became more comfortable with one another, inhibitions such as asking questions on-line were overcome. In future, interaction in the Vista Intranet will be both synchronous and asynchronous.

The major change for the students in the first Intranet in Newfoundland and Labrador however, has been the opportunity that has been provided to study

advanced science subjects, as members of open classes, from their small, remote communities. An Intranet has many implications for the management of education, based on the need to ensure all sites collaborate both academically and administratively. The most important administrative issue in the first year of the Vista Intranet was the co-ordination of timetables across participating sites. The need for increased technical support for this open structure has become increasingly urgent for teachers and students who are using information and communication technologies to teach and learn across dispersed sites. Both have to be provided with expert advice and instruction in the use of new applications. A particular problem has been difficulty in securing and maintaining instructional design expertise in the preparation and upgrading of courses delivered through the Intranet.

## **CYBERCELLS AND VIRTUAL REALITIES**

The Australian and Canadian rural studies point to the importance of teachers being aware of students' need to make sense of the non-local world to which many must migrate in search of work or further education at the conclusion of their secondary schooling (Abbott-Chapman & Patterson, 2001). The studies also indicate the need for rural high school classes to be extended so that students' awareness of the non-local world can be increased. A Canadian program has been initiated that attempts to bridge the gap between pre-service and in-service teachers based on cybercells in which the issue of rural student perceptions of the non-local world can be raised and considered (Stevens, 2008a). A cybercell is a face-to-face group whose members extend their discussions to include virtual visitors (Stevens & Stewart, 2005). This recent addition to the lexicon of e-learning describes the integration of actual and virtual discussions, meetings and classes and has particular application in internet-based networks of schools (Stevens, 2005). Cybercells provide teachers with opportunities to discuss their respective work with other teachers on-site and on-line and also for students (including rural students) to discuss their work with peers in other schools. Cybercells enable teachers and students to engage in both actual and virtual environments thereby extending rural classrooms in terms of teaching and learning. Through the introduction of cybercells, rural high school classes can be enhanced and, potentially, the world-view of students who attend them can be expanded.

Teachers in rural schools in the Canadian province of Newfoundland and Labrador are, increasingly, expected to provide instruction between sites as well as in traditional classrooms. The introduction of cybercells for teachers increases awareness of recent networked changes in school organization in Newfoundland and Labrador, particularly in the majority of schools that are located beyond major centres of population. In this process the world view of students is extended beyond rural communities to link with teachers and young people in other places. In opening traditional on-site classrooms to other classes for part of the school day, using the internet, collaboration between teachers becomes essential and collaboration between students is encouraged. Collaboration between students and teachers across diverse networked sites facilitates the building of shared realities, including the reality of the non-local world to which many will migrate for further

education and jobs. In building shared realities between rural and non-rural students, (and their teachers), mutual understanding is fostered.

The Australian and Canadian studies of rural student educational and career decisions are each part of broader concerns about the provision of opportunities for young people who are educated in rural communities (Abbott-Chapman & Patterson, 2001; Healey & Stevens, 2002). It is anticipated that the introduction of virtual teaching and learning structures within and between small schools will counter and, possibly, reduce, disparities between students in rural communities in ways in which they engage with the non-local world. The creation of virtual educational environments linking small rural schools and, within them, cybercells, provides new ways for geographically-isolated students to engage with and experience the non-local world before they physically enter it.

### **RE-POSITIONING SCHOOLS TO SUSTAIN RURAL COMMUNITIES: LESSONS FROM RURAL AUSTRALIA AND CANADA**

The problems that have faced rural education in Australia and Canada over the last decade and responses to them are likely to be of interest to educators and policy makers in other parts of the world. There are several lessons for the global education community that can be learnt from Australian and Canadian experience in building sustainable rural schools in which enhanced learning opportunities are provided for students:

- Young people in rural schools experience isolation in different ways. Some are more isolated from the non-local world than others.
- Recognition of the special nature of the problem facing senior students in rural schools making post-secondary educational and career decisions that may reduce the impact of physical isolation on educational outcomes.
- Small schools can become large schools. Schools that are small in terms of the number who attend, in person, on a daily basis, can become large educational institutions to the extent they electronically access and disseminate teaching and learning.
- Small schools can be sustained through the introduction of new structures (such as intranets) and processes (such as cybercells) that enable virtual and actual teaching and learning to be integrated.
- Young rural people in a growing number of rural schools are being prepared for the digital world by educating them within that world.

### **CONCLUSION: FROM CLOSED TO OPEN CLASSES**

A possible direction that rural schools may follow since the advent of e-learning is to become increasingly open. It is possible to consider traditional schools as closed teaching and learning institutions that serve designated communities. Traditionally schools have appointed their own teachers and enrolled their own students and, as such, they can be considered closed learning environments. They

are not open to people beyond their own communities. By linking classrooms in and between schools within intranets it is possible to form open teaching and learning environments so that teachers can collaborate between sites and students, particularly those in small schools in rural communities, can access extended, virtual, learning opportunities.

The electronic opening of pathways between rural schools may be extended to include e-living (Stevens, 2008b). The digital linking of rural schools and the new pathways for high school students that have been created can now, possibly, be extended to include links between schools and student's homes. The high technology beacons that some rural schools have become can provide opportunities for adult learners in their communities.

The future of rural community life is likely to be built on relationships between e-learning, e-government, e-business and e-health. Rural communities with digitally-enhanced schools may consider ways in which increasingly open learning environments may be extended to include contact with these e-environments. Contact with other e-environments make it possible for small rural schools to become centres of e-living in their communities.

Finally, by digitally-enhancing capacity in existing rural schools there is a lesson for the global community in turning adversity to advantage. The development of new structures and processes that have transformed access to educational and, indirectly, vocational opportunities, in small and isolated communities in developed societies could become templates to be modified and introduced in other, less advantaged, areas of the world. The quality of recent changes in rural education in developed societies like Australia and Canada will be judged by the extent to which learning opportunities for young people in small communities match those available to their peers in large urban institutions.

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