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***The STARtrek Science Show -- 'Beaming' tutors/mentors
into regional schools***

by

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The Challenge -- The Tyranny of Distance and Equity

When the STAR Peer Tutoring Programme was launched in 1994 an early challenge was how to offer peer support to students in regional and remote schools -- bearing in mind that Western Australia covers 2.5 million square kilometres. To put that in geographical terms, W.A. is ten times the area of the UK and nearly four times larger than Texas; stretches more than 2,000kms from north to south, with 13,000 kilometres of coastline -- and with more than three-quarters of its 1,750,000 inhabitants living in the Perth metropolitan area.

The challenge was more than conquering the 'tyranny of distance'. It was to offer equity to students who are not only isolated geographically but who, in many cases, can be isolated from positive peer support.

Human Rights Commission Report -- Country students 'disadvantaged'

The equity issue was recently underlined in the findings of a six-month study by the Australian Human Rights Commission, which classified regional students in Australia as 'disadvantaged'.

Melbourne University's Centre for the Study of Higher Education added further weight by confirming what many long suspected -- that students from rural areas who have low and medium socio-economic backgrounds are severely under-represented at Australian universities.¹

The Centre's study found that for every 10 city students attending universities in Australia, there are only six students from rural areas. And the Centre has recommended that the federal government examine ways to reduce education costs for rural students, establish a task force to improve education and employment opportunities for rural students, and (most significantly from my viewpoint) to set up programmes for universities and other institutions to focus on disadvantaged students in selected regions.

Since the original aim of STAR (Science and Technology Awareness Raising) was to raise the aspirations for science and technology of secondary school students it was inevitable that we should, first, turn to computer-based telecommunications technology to reach out to rural students.

Discussions highlight urgency

Discussions with principals and teachers in country schools; various government, industry and community representatives in regional centres; country students at Murdoch University, and parents of country students attending the WA Science Summer School only added greater urgency to the need to find ways of extending peer support to students in regional and remote schools.

¹ Reported in *The Age*, 12 September 1999

Student attitudes

On visits to regional schools, I speak with many students and teachers involved in the STARnet (peer tutoring/mentoring through e-mail) programme. What surprises (and saddens) me most is that many rural students seem to lack vision, real choices and knowledge of possible career opportunities. Some teachers, not all of whom are well-versed with information technology (IT), see the potential of this technology, through STARnet, as one means of helping to motivate their students academically and to become more aware of the capabilities of modern technology and other study/career options.

Let's be realistic

Australians are great users of communications technology -- dating back to the days of the pedal wireless that opened up educational opportunities to students on outback cattle and sheep stations. And the School of the Air, in its several variations, is still a wonderful service. But are we placing too many expectations on IT? I suspect we are. While many in this generation of youth appear 'at ease' with the technology that surrounds them, I find that most teenagers still actively seek acceptance and support in the company of their peers. It is 'cool' to 'hang out' with a crowd.

But there is another side to this desire to 'hang out' with one's peers. And, while it is not peculiar to any one group of teenagers, it can be a particular problem in close-knit regional communities. One teacher even went so far as to say that peer group pressure among country students is one reason why some, very-able students will not pursue further education -- if it means leaving home and friends. Contrast that with the tradition of 'going away to college/uni' that exists in the United States and even the UK.

So, if we are to reach out to these young people, how do we put a human face on the latest communications technology?

STARnet and the STARtrek Science Show

In 1997 STARnet, using e-mail to connect peer tutors and tutees, was introduced in five country schools -- from Albany, 400 kms south of Perth, to Karratha, 1000kms north in the West Pilbara.

Our early dependence on e-mail has had one main advantage -- that contact between tutor and tutee does not have to be at the same time.

The university students can access their email at almost anytime and, with the co-operation of teachers, school students can access their email at times set aside in class, at lunch breaks or after school.

Bringing tutor/mentor and tutee/mentee face-to-face

E-mail, alone, has not suited everyone and two methods of providing face-to-face contact have been introduced:

1. the STARtrek Science Show
- and
2. the use of desktop video-conferencing.

This paper concentrates on the former.

Developing and pitching the message

The STARtrek Science Show, introduced last year, takes a team of six tutors on the road to present three-hour, hands-on sessions focussing on the standard curriculum subjects of chemistry, physics and biology, but pitched at Year 10 students (15 year-olds) in country schools. Each experiment is developed by -- and conducted under the guidance of -- the peer tutors to demonstrate the use of science and technology in the everyday world.

Two STARtreks have been conducted in each of the past two years.

In the inaugural tour, in May 1998, the STARtrek Science Show crew presented programmes in four schools in the Great Southern region -- and, in August, they did a round trip of 4,000 kms to schools at Karratha and Port Hedland in the Pilbara. This year, a 2,000km round trip to Northam and the Eastern Goldfields, made a contribution to National Science Week in May. In August, the STARtrekkers, in the best tradition of show business, battled gales and fallen trees, to keep faith with South West regional students and to present their shows in Busselton, Margaret River and Bunbury.

In total, the crew have travelled nearly 10,000kms to present these programmes during their own study breaks.

Participation -- a key to fostering awareness

Nearly 2,000 students have participated in the STARtrek Science Shows. And participation is a key to gaining the students' attention and willingness to be aware that science and technology is not 'alien' to them -- but something they use (albeit often unwittingly) everyday in a wide variety of ways -- from brushing their teeth to skateboarding; from flicking a light switch to understanding the internal combustion engine.

The sessions are also designed to leave the students questioning. The message being that we can't explain everything that goes on in our natural world -- nor should we accept, unquestioningly, what is being done 'in our interests' through developments in science and technology -- so we need to be scientifically and technologically aware.

The response? come again!

The response to the STARtrek Science Show, from teachers and students, has been very positive and has provided a first contact between the school students and university students who may become their mentors.

Typical comments from teachers:

'Well balanced activities. Both hands on and demonstrations pitched at the right level for the right amount of time...Thank you for your time and efforts...much enjoyed and appreciated.'

'Thank you once again for the STARtrek Science Show. Our students thoroughly enjoyed and learned much from the experience... Keep up the great job.'

'Caused a lot of discussions between the students following the show -- Please come again!'

A complement to the use of technology

The STARtrek Science Show has gone some way to 'personalising' the contact between student and tutor/mentor and to develop, as best we can in such a short visit, the kind of rapport that face-to-face mentoring has provided so successfully in metropolitan schools. It is, for logistical reasons, restricted to being a complement to the use of IT in breaking down the sense of isolation.

It makes sense in dollars -- and helps forge partnerships

A week-long 'trek' costs between \$3,500 and \$6,000 -- depending on the distances to be covered -- and requires careful planning to move the crew and all their gear. The visits can only be offered during times when the peer tutors -- all volunteers -- have a break from lectures, but schools are still in session. In effect, that means once each semester in Murdoch University's timetable.

In terms of the bottom line, it has cost just over \$16,000 to present 16, three-hour programmes during the four 'treks' -- about \$8 per high school student who participates. But that is more than offset by the students' and teachers' responses and the enduring goodwill fostered by the peer tutors' enthusiasm, energy and infectious good humour. More than one teacher has commented on the STARtrek crew's stamina and their ability to motivate interest and encourage participation from students. And the principal of one regional school marveled: 'It is wonderful that you have come so far for us. This is an experience our students won't forget, because they miss out on so much that kids in the city take for granted.'

STAR's enduring goodwill has so far led to three country schools involving Murdoch University in important local projects that have earned the University a higher, positive profile through local media coverage.

These school/STAR/university 'partnerships' have been a valuable (but unexpected) bonus for the crew's investment of time and energy. They also have 'added value' to the investment by the STARtrek Science Show's sponsors.

Government agencies and companies with regional interests are willing to help their local communities -- and particularly young people. STARtrek Science Show is partly funded by a grant from the Western Australian Department of Commerce and Trade, through its Science and Technology Policy Division. It also has attracted sponsorships and support in kind from the W.A. Chamber of Minerals and Energy and several individual science and technology companies.

Wetlands rehabilitation and a student-run radio station

Since the 'treks' began peer tutors and academic mentors from Murdoch have become increasingly involved in projects initiated by some of the country schools visited.

Teachers have contacted the STAR office seeking advice and/or access to expertise not available locally. As a result, project-based work gives promise of being an excellent means of establishing stronger, on-going teacher/tutor/student/university rapport.

Three projects are currently underway with country schools. Through STARnet and STARtrek contact, mentors (both academics and students) were recruited to help Northam Senior High School -- about 100 kms east of Perth -- with a wetlands rehabilitation programme on the banks of the upper Avon River -- initially supported by a grant from BP Australia.

This is an on-going project, starting with a group of Year 8 students (13 year-olds). On-site advice was given to the teachers and students involved, and the school organised a visit to the Murdoch campus for students to undertake a wetlands ecology field study and associated laboratory session.

Mt Barker Senior High School -- 350kms south -- sought help through the STARnet/STARtrek connection to provide technical/mentoring support for its Year 10 technology students setting up a community radio station on the school campus. Since STAR's involvement, offers of help have come from staff at the regional ABC radio station and the local council. The school has adopted STAR Radio as its future call sign in recognition of the help provided through the STARtrek connection.

Most recently, members of a student 'company' at North Albany Senior High School (400kms south of Perth) received support and practical advice from a STAR tutor/mentor in developing a tourism-based project as part of their business studies. The tutor/mentor initially used email to communicate with the students, but was later able to see and speak to them through a desktop computer video-conference. The project team also was supported by an experienced Albany business mentor.

All three projects attracted wide-spread local media attention.

Benefits and experience you can't buy

In these project-based mentoring arrangement, there are potential benefits for the individuals involved, the educational institutions, for the community and for industry. The projects provide valuable 'real world' experience for both the students and their peer tutors/mentors – working under the supervision of experienced academic and industry mentors.

Through their experience the students and tutors/mentors are able to build confidence, develop workplace skills and work with experienced technical and professional mentors in a non-threatening, informal relationship.

However, project-based peer tutoring/mentoring has yet to be introduced on a wide scale and, while STAR's face-to-face mentoring has demonstrated positive outcomes in metropolitan schools, STARnet and the STARtrek Science Show will need time to develop and to deliver the expected outcomes.

Stay Tuned

Russell Elsegood has been working with student peer tutors for the past ten years -- having first enlisted their involvement in the WA Science Summer School. The Science/Technology Awareness Raising (STAR) Peer Tutoring Programme at Murdoch University is an adaptation of the Pimlico Connection at Imperial College, London. Although a graduate in history and politics, and a journalist by training, Russell has worked in partnership with BP to raise greater awareness of science and technology, and to promote the value of students as peer tutors/mentors. Coming from a family with strong country roots, Russell takes a particular interest in offering tutoring and mentoring support to students in rural and regional areas of Western Australia. Contact details: STAR Peer Tutoring Programme, Murdoch University
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