

## **Taking Science to the Community: The Shell Questacon Science Circus**

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### **Abstract**

As science centres have developed around the world, so too have outreach programs that take science exhibits and shows into regional areas. Questacon, Australia's National Science and Technology Centre and the Australian National University have developed a unique travelling science circus that combines an outreach program with an academic qualification, leading to a Graduate Diploma in Scientific Communication.

Australia is geographically a large country but with the major population centres around the coastal regions, particularly the eastern seaboard. As both institutions are national bodies, the outreach program is not restricted to the local area around Canberra, but endeavours to travel to all states of the country every three years visiting schools and community centres. While touring regional areas the students also participate in the School of the Air which allows them to reach school aged children in extremely remote areas who otherwise would be unable to benefit from this program. When possible, at least one tour each year is dedicated to remote Indigenous communities. This requires considerable preparation so as to make the science relevant and appropriate for the culture of Australia's Indigenous people.

Evaluations of this outreach program have indicated that it is highly successful in taking science into Australia's regional and remote areas and provides a unique learning environment for the young science graduates who are selected for the program.

### **Paper**

#### **Introduction**

Questacon has a number of programs specifically designed for Indigenous communities. One of these involves the Shell Questacon Science Circus (SQSC) which this year (2002) travelled to Arnhem Land in the far north of the country. Over the last few years visits to these communities have been made more relevant by implementing specific training programs based on the realisation that cross cultural communication is complex and methods used in non-Indigenous rural communities are not necessarily appropriate or relevant to Indigenous communities.

This paper concentrates on the training programs implemented and costs involved in preparing for and getting the SQSC to remote Indigenous communities in Australia.

#### **Addressing Multi-Cultural Issues**

Scholars in the SQSC are given extensive training in performance skills necessary for effective communication through science shows and also in conducting teacher workshops in the rural communities they visit. The design of these programs is not necessarily appropriate for people in isolated communities with different cultural backgrounds. To make visits to remote areas relevant and effective, purpose designed programs have been developed. These reflect the types of activities and shows conducted on other tours but are specifically geared towards the learning styles of Indigenous people.

Besides modifications to the standard format of SQSC there are three main phases in preparing the scholars for their visit to remote Indigenous communities:

- o The first phase of training is conducted in Canberra by a private consulting firm specialising in cross-cultural communication. The sessions do not focus on any particular culture

but rather took a general approach to multiculturalism by looking at mainstream Australian culture and others and what happens when they meet.

This program, although a stepping stone to the understanding of Indigenous culture serves a much broader purpose for the scholars in dealing with the many different cultural groups who reside in Australia. Our population is very diverse in ethnic and cultural terms and the scholars come across this in all their interactions with schools and community groups.

o The next phase of training focuses specifically on Indigenous culture. This is an intensive course run by Indigenous trainers in a camp setting. The course is a total cultural immersion highlighting both the diversity and the common features of Indigenous cultures.

The course is a combination of role play and camp fire discussions taking the participants through the last 200 years of Indigenous history and experiences. One comment made is that the mix of role play and discussion is so "clever" that participants often can not discern the difference and maintained role play throughout discussions. The course is experiential with participants belonging to particular families or clans and having to behave appropriately within that context. The course also provides insights into many of the issues facing Indigenous people today.

o The final training phase involves people with specific knowledge about particular areas to which the SQSC travels. This includes specific cultural protocols and behavioural expectations of the communities being visited. These training/information sessions were conducted in Darwin in 2002, the closest capital city to Arnhem Land

Another essential issue that has to be addressed when visiting these remote communities is that English may not be the community's first (or even second) language. Training is also provided in effective communication where language may not be the most appropriate form of information delivery.

#### Putting it Together and Hitting the Road

The SQSC is usually accompanied by a semi-trailer, which carries all their props and exhibits from one location to the next. Due to the accessibility (and distance travelled) this is not used in remote Indigenous community visits. Four-wheel drive vehicles are essential and hence much less equipment can be carried.

Anyone entering Arnhem Land requires a permit issued by the traditional owners of the land. Entry permits, although not difficult to obtain, can be cancelled at any time due to ceremonial events, such as funerals, which may be taking place. When embarking on tours of this nature access to some communities may be prohibited without notice.

Once in Darwin, the team split into two groups to cover East and West Arnhem Land (which includes Kakadu National Park). The teams then travelled by 4WD or charter aircraft to visit remote communities and schools in the region. Some schools, Homeland Schools, do not have a resident teacher but are staffed by a teacher's aid. A teacher from the main community school visits Homeland Schools about once a week.

As mentioned previously, the standard format of shows was modified to suit the audience with much shorter shows than the usual 20 minutes. The show then leads into an activity in which all the children are involved. The use of mime helps in overcoming language barriers and generates curiosity encouraging students to explore and ask questions. The emphasis is on doing not just watching others. Students are given challenges and encouraged to use everyday items such as rope, brooms footballs etc to demonstrate scientific phenomena in a fun and innovative way.

Teachers were also provided with written material with ideas for future activities. The main emphasis being on using what is at hand rather than relying on materials which may not be easily obtained in remote areas.

### How Much Does it Cost?

The SQSC has a number of sponsors who keep the show on the road (see below). Due to distance and accessibility, the remote area tour requires significantly more financial support to enable it to happen. In other tours children pay a small fee when the SQSC visits their school and there are also door takings at public venues and sales of science toys that help defray the cost of the program. No fees are charged for the remote communities tour.

In 2002 there were 20 people on the tour. This included sixteen scholars, two representatives from Shell Australia and two co-ordinators of the SQSC. Most of the costs involved relate to travel. This includes flights to Darwin, 4WD hire and charter flights. There is also the cost of training in preparation for the tour. Accommodation costs are minimal as the teams camped in the communities or bunked in community facilities. In 2002 the cost of the tour was approximately A\$50,000.

Besides additional sponsorship and donations this tour is really only possible in its current form due to the fact that there are no salaries involved for the presenters. The scholars receive a small stipend as part of their scholarship. The training and experience for the scholars forms part of a course work unit (Science and Society) which counts towards the Graduate Diploma they receive upon completion of the program.

There are cheaper methods of delivering a remote program such as this which would have similar outcomes for the communities but would not be appropriate for inclusion in an academic program that goes for one academic year. Because of this training must be provided every year to the new cohort in the program and there are 15 - 16 scholars each year. One way of cutting costs would be to have a smaller number of trained people with fewer turnovers. However, this tour forms an invaluable part of the overall training and education of the scholars and as long as it is possible similar tours will be included each year of the Graduate Diploma.

### Outcomes: Is it Worthwhile?

Although the remote Indigenous Community tours have not been formally evaluated the feedback from the communities visited and the scholars has been overwhelmingly positive.

From the scholars point of view it is a culturally rich experience and often something to which they have never before been exposed. Some have even said it was a "life changing experience".

The communities visited have also been very positive wanting the SQSC to stay longer and visit more often. Most positive comments have come from those communities that get very few visitors. Comments regarding the preparedness of the team have certainly justified the training program. Many communities felt the scholars were far better prepared than many teachers who are sent to remote area schools, often with no specific training in Indigenous culture.

### Other SQSC Activities in Remote Areas

While the remote communities tour visits predominantly Indigenous communities, there are also education and accessibility issues for other children living in extremely remote areas. The nature of the land in much of Australia means that cattle and sheep stations are very large with owners/managers and their families being very isolated from local towns and schools. There are also families living in other isolated circumstances, such as on boats or in lighthouses, who do not have access to normal educational facilities. School aged children living in these situations often experience their education through the School of the Air, a high frequency radio education program catering for primary and secondary students.

Each year scholars present on the School of the Air. This requires quite different presentation skills as most of the standard shows are visually based. Below is feedback from the Science Co-ordinator of the Longreach School of Distance Education located in central Queensland:

Your group of Science Circus presenters were here yesterday and I wanted to officially give notice to their superiors of how fantastic they were. The team É were required to present to remote property kids via HF Radio. It was their first exposure to this type of teaching and they were absolutely outstanding! Please let them know how much we enjoyed their visit and know that your organisation is welcome here in Longreach any time!

This is a great testimonial to the commitment and talents of the scholars in delivering quality programs in quite unconventional circumstances. It also shows how appreciative isolated communities are to be given the opportunity to participate, in one form or another, in programs city kids tend to take for granted.

#### Conclusions

The SQSC is a joint outreach program offered by Questacon and The Australian National University that provides valuable training and education for scholars leading to the award of Graduate Diploma in Scientific Communication. It also provides communities, both Indigenous and non-Indigenous, with access to relevant entertaining and educational programs they would not otherwise have. This is in keeping with Questacon's mission statement: Making science fun and relevant to everyone.

With continued support from major sponsors and donors the program will provide a training ground for talented science graduates in the area of science communication, while at the same time taking science to rural and remote communities of Australia.

Sponsors and supporters of the Shell Questacon Science Circus are:

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