

The Shell Questacon Science Circus

Michael M. Gore

The Australian National University

mike.gore@anu.edu.au

Abstract

This paper describes the development and current operation of The Shell Questacon Science Circus, a travelling component of Questacon – The Australian National Science Centre in Canberra. The Science Circus is the result of a threeway collaboration between The Australian National University, Shell Australia and Questacon Science Centre. For the last six years, Science Centre World Summits have been calling for travelling programs to be established on a worldwide basis that will take science to disadvantaged people, many who live in remote areas. The Shell Science Circus uses a large truck to carry all the 50 interactive exhibits and the materials that are involved. There is a team of 15 students who travel with the Circus and act as Explainers, run a small science shop, repair exhibits, deliver workshops to teachers and perform science shows for school children in local schools. In addition to taking science to people all over Australia, a country the same size as the USA, it involves a tertiary course in science communication in which the team of students is enrolled. It has therefore, over the past 30 years, produced a large group of skilled science communicators.

Introduction

Science centres throughout the world are attempting to increase their influence over greater geographical areas by using outreach activities like travelling science exhibitions. They are actively demonstrating that they are firmly committed to such ventures.

In the Science Circus World Summit in Toronto in 2008 they made the joint declaration that *“science centres should work together to overcome cultural, physical, social, economic and geographic barriers in order to engage and connect people through science.”*

Again in the Science centre World Summit in Cape Town in 2011, they declared *“science centres should continue partnerships to promote science awareness and engagement across cultural, political, economic and geographical boundaries.”* Here once again we see the phrase “geographical boundaries”

Finally, just recently, at the Science Centre World Summit in Belgium, (2014) a statement was made to the effect that science centres should, *“investigate how to engage even more effectively with local communities and increasingly diverse audiences.”*

Twenty years before any of these statements were made, the Shell Questacon Science Circus had been established and was operating all over the vast island continent of Australia.

Origins of The Science Circus

Questacon Science Centre began in a modest way in an old school building in Canberra and initially it was aimed at introducing the concept of the interactive science centre to the Australian government and the Australian public. At its inception, like so many other emerging science centres around the world it was part of a university: in this case The Australian National University (ANU).

Shortly after its establishment, the number of visitors to Questacon soared, and short science demonstration shows were introduced to expand the scope of the attractions that were offered to the visitors. Many of the show-givers were young ANU undergraduates and they took to the activity with great enthusiasm. The science shows were a great success and the presenters became very popular with the visitors. However, an unexpected bonus for them was how much and how fast their confidence increased and how much they developed their communication skills.

By 1984 there were more than a dozen ANU undergraduates engaged in presenting science demonstration shows to the public and in that year that I decided to

establish a travelling version of Questacon. The Circus began in a modest way and at first only travelled short distances from Canberra.

The first version of the Questacon Science Circus took to the road in 1985 using an old furniture van for transportation. It began by making short weekend visits to towns within a 100km radius of Canberra. Initially only about 20 interactive exhibits were taken with the Circus, but in addition there were also props for some 15 science demonstration shows. The early interactive exhibits that travelled were taken from the floor of the science centre in Canberra. The original Circus exhibits that were used were not designed with the idea of being moved around, and as a result, in the early days many were damaged. However as time went by, the exhibit design team became cleverer and more exhibits survived the tours.

With time, and buoyed up by success, the Circus began to cover more and more territory. In 1986 it made a remarkable tour south to north across Australia, travelling distance nearly equivalent to London to Moscow (2500km) in just one month making six stops on the way. The distance from Sao Paulo to Salvador is only 1500km.

The name 'Shell Questacon Science Circus' came about in 1988 when it attracted major financial support from Shell Australia. By this time the Science Circus was travelling great distances each year catering for Australians who were disadvantaged from a geographic point of view. They were people who were unable to travel to Canberra, or for that matter any other capital city where they could take advantage of what was being offered by the growing science centre movement occurring in the 1980s.

Many other science centres in Australia and around the world have travelling programs but the Questacon Science Circus is unique. This is because it involves a university postgraduate program that nurtures science communicators and these young graduates, who now number in the hundreds, are also highly regarded young scientists.

The program is much more than a schools outreach initiative. It is a unique combination of a science centre with a parent university – in this case the Australian National University (ANU) in Canberra – and has provided a special dimension to the training of these students.

Operation of the Shell Questacon Science Circus.

Everything that is involved in the Science Circus is transported all over Australia in a large truck. This is a very large enterprise, remembering that Australia is the same size as the United States of America. The circus aims to visit each of the six Australian states every year, New South Wales is about the size of Western Europe. There are four or five tours each year, and the annual itinerary includes remote Aboriginal communities.

Today the Circus is operated by a group of around 15 postgraduate students who are selected by audition and academic merit, from universities all over Australia. They are chosen each year from a large number of applicants both from Australia and overseas. In general more women than men apply for the program. It is also interesting that there are more biology graduates in the program than students from the physical and earth sciences and other related disciplines.

The successful students who are chosen come to The Australian National University in Canberra to take part in a postgraduate program in science communication, the practical part of which is travelling around Australia with the Science Circus and communicating science to the public. In addition to delivering science shows and running all aspects of the Science Circus at whatever venue is used, the students also give workshops to local primary school teachers about how to include interactivity into their teaching.

When the truck and the team reach a chosen venue everything is unloaded into what could be one of many types of accommodation. It could be, for instance, a community hall, a basketball pavilion or a town hall. Once unloaded and set up in whatever venue, it is opened to the public and visited by parents and their children.

The team then splits up into pairs and travels to schools which can be up to 100km from their base to give science shows to school children. At the conclusion of each show every child in the audience is given a free pass to visit the interactive science exhibition that has been set up in their town or a neighbouring town. This has the result that the children are taken by their parents to visit the exhibition in town where they can explore the interactive exhibits as family group. This family interaction has been found to be very powerful.

The science shows presented by the Circus team are short, thematic presentations incorporating simple demonstrations on a single theme such as *The Music Show* or *The Pressure Show*. They are interactive, involving the audience as participants and as volunteers. Performing in a theatrical manner in front of paying audiences is a demanding task, especially for young scientists whose initial undergraduate experiences do not often include training in public speaking or the theatre.

The students organise and run every aspect of the Science Circus. They staff the science shop, manage the venue and the public, and act as explainers for the exhibits. It is exhausting work. The Circus remains in one spot for about three days before moving on, and in that time the scholars will talk to the local media, often appear on local television and generally promote the aims of the Circus.

Because the program in which the students are participating is run by the Australian National University two co-ordinators, who are staff of The National Centre for the Public Awareness of Science at ANU also travel with the Science Circus. Their full-time professional role is to act as mentors, teachers and facilitators for all aspects of the program. They actively help in the training of the students and provide feedback to the students about their performance when delivering science shows to the public audience. These coordinators also assist with the overall grading of each student in regard to their progress with the various aspects of the course.

The truck carries about fifty interactive exhibits that, as explained earlier, are designed specifically for the circus. However when they are not on tour with the Circus these exhibits are on display in the Science Centre in Canberra. They are carefully designed and constructed and each exhibit takes the form of a box with a removable lid. An interactive exhibit is securely fastened inside the lid, together with a small graphic panel. This panel explains how to use the exhibit and a little of the underlying science. The students are trained to give additional information about the exhibit to the visitors. In this respect they act as Explainers. In order to set up the exhibit the team only have to invert the lid, place it on the box and all is in place, ready to go. Any accessories or loose items are stored at the bottom of the box while travelling. The interactive exhibits are, therefore, very simple and easy to clean.

Computer-based exhibits are minimised, not only because of the maintenance problem but because the “high-tech” end of the interactive spectrum is not the focus of Questacon’s interactives in general and there is no guarantee of multiple plug points in a venue!

While simple in construction, the exhibits can be heavy to move around so the circus travels with trolleys which are used to move the exhibits but nevertheless the students quickly develop strong arms! Simple maintenance is carried out by the team of students but serious problems have to wait to be resolved by the technical staff back at Questacon Science Centre in Canberra during the breaks in touring.

The sponsorship provided by Shell Australia is vital to the success of the program because it is extremely expensive to run. In addition students must be supported on a full time basis with meals and lodging. Because of the intensity of the program they have no time to engage in part-time employment. Sponsorship also covers the travelling costs that, due to large distances, are usually achieved by air. In addition the Circus on average makes use of about 5-6 hire cars at each venue. These cars enable them to reach the outlying schools. As explained, other costs associated with the Circus include food and accommodation. The students, however, often cook their own meals and this is facilitated by staying in low cost caravan parks.

Conclusion

The number of people reached by the program each year is in the region of 100,000 and its highly positive outcomes indicate that the public and the sponsors receive good value for their money. The Circus has been operating for over 30 years and there is every indication that it will continue well into the future. The Circus is successful in two very important ways. First it takes science to the public all over Australia and second it has been generating a very large pool of trained science communicators for some thirty years. Together The Australian National University, Questacon and Shell Australia are addressing the critical needs for outreach to disadvantaged communities, that were so clearly articulated by the three successive declarations of the worldwide science centre movement.