

Robot Thought venue 5: Open University / W5

Successes, challenges and recommendations

This document summarises the successes and challenges in developing, delivering and evaluating *The Trouble with Robots* show and related LEGO workshop activities from the perspectives of the project partners. The show was developed following collaboration between the Open University, W5 and the University of the West of England. The results from the audience evaluation are provided in a separate document.

During the visit to W5, the show's developer and presenter was interviewed. The evaluator also sought perspectives from the learning manager and other presenters during the visit. Post-visit, one of the roboticists was interviewed by telephone, while the other gave feedback via a wiki. The evaluator's own observations and conversations with participants are also taken into account here.

Successes

Interviewees identified a number of successes associated with the project:

The show

- The roboticists, presenters and science centre staff felt that the schools show had been well received by the audience.
- The presenter said it was the first time he had worked on a show aimed at students that age (13-14) and was encouraged that it went so well.
- The schools audience were at the upper end of the age range targeted by *Robot Thought*. Projects at previous venues have suffered due to audiences younger than those the show was pitched at, but here the subtleties of the science were fully understood. This was helped by the reinforcement of the definition of a robot throughout the show.
- The floor show did not go so well the first time (technical difficulties meant the start time was delayed by half an hour), although reports from the second time it was delivered were much more positive. The show is included in the summer brochure so will be delivered by the presenters as part of the W5 programme. It could also be taken into schools as an outreach show.

The workshop

- Despite some challenges with the workshop (see section below) it was well-received by teachers and students.
- It was also an opportunity for some family visitors to have meaningful discussions with the roboticists about issues related to programming and sensors.

Project structure and coordination

- The presenter that developed and delivered the show did so with little support from W5. As an experienced presenter this is the way in which he prefers to work and is in line with the culture at the science centre.
- He felt it was very useful to see the show at NMSI in London – it was the first time he had ever seen a show in another centre!
- A real strong point of the project for him was the opportunity to improve his own practice through seeing the other show and working with other people in science centres and science communication.

- So while he worked autonomously within W5, the support from UWE was highly valued. He found the script preparation day the most helpful. The rehearsal time was also helpful but was maybe slightly too long. He acknowledged that he wasn't as ready as he could have been for the rehearsals.
- His approach was not to work from the existing script and he appreciated the flexibility within the project that allowed him to depart from it. Although he said that the existing script was a good way to gauge the quality of his work and encouraged him to try and create a better show.
- He enjoyed the visit to the lab at Queens University Belfast, and through the project has developed his personal interest in robotics.
- From the wider W5 perspective, the funding available to participate in the project was a strong motivator. It enabled the programme to be properly resourced: for example W5 had graphics, props and posters designed especially for the show. It also facilitated the attendance of the presenter at *Robot Thought* planning events.

Challenges

The interviewees identified a number of challenges:

The show

- The OU roboticists didn't have a specific discipline so it wasn't clear where changes to the existing script could be made. Possibly for this reason, but also because the roboticists were to focus their efforts on a separate activity, there was a lower level of presenter/roboticist interaction in this leg of the project. More detail on this later.
- It was difficult to commit to a time for the show's launch early on in the project. Despite the long lead time there was still a rush towards the end – largely due to pressures from the other shows the presenter was working on at the time and the extra tasks associated with arranging activities for schools; travel arrangements and booking details were also the responsibility of the presenter.
- Linked to the above point, it was difficult for the presenter to spend the time off-site that the project required (and would have been all but impossible were it not for the funding).
- On the launch day, two of the schools were severely delayed on the way to Belfast which meant last minute changes to the programme needed to be made, and the length of time allowed for the workshop reduced.

The workshop

- Despite being well-received by visitors, the workshop was stressful for the deliverers. A number of challenges were identified which gave rise to lots of recommendations for improvement.
- Shipping the equipment necessary for the workshop to Belfast was a problem. Costs greatly exceeded estimates and one of the OU banners was damaged in the process.
- The workshop was delivered in the Atrium, which was adjacent to a noisy gallery and had poor acoustics.
- The exact nature of the tasks within the workshop was not finalised until the day of delivery. This was problematic because it meant that the facilitators W5 had provided (and one of the roboticists) were under-prepared for the first session. After the first session, this aspect was much improved and the facilitators were able to offer more support.

- Several other improvements were made after the first (rather chaotic) session. The amount of LEGO on the tables was reduced and the task was simplified to account for the short session time. As a result, the second session ran much more successfully.
- Really there were too many students in each session; the observed optimum group size was three students per set, and each table had 10 students and 2 sets of equipment. There were around 90 students in the first group and only one roboticist with a laptop to programme all of the robots. The second group was slightly smaller which helped.
- The weekend drop-in session was less well-attended, which allowed greater interaction between roboticists and visitors. However the relatively low number of visitors was disappointing to the roboticists.
- As mentioned earlier, communication between roboticists and W5 prior to the workshop was limited. This was difficult for the presenter who needed clear details to inform schools and publish in the W5 brochure. It also meant that facilitators weren't able to offer much support during the workshops.
- For this leg of the project, the science and technology covered in the show was not as strongly linked to that covered in the workshop as with previous collaborations.
- The LEGO workshop was a success from the perspectives of the visitors, but not from the perspectives of the deliverers. However it was very useful to try out this way of working to make recommendations for future activities.
- In hindsight, a simpler activity that required less equipment and could have been delivered by roboticists and W5 staff alike would have been preferable. Pre-programming the LEGO bricks would have saved time and effort during the activity. It would also have allowed the science centre to run the activity on occasions when the roboticists weren't present.
- If students are to work in groups larger than three, assigning team roles such as programmer and someone to read the instructions would be helpful.
- The *Robot Thought* project was designed to support roboticists and science centres to develop a *show* about robots together. However, the project has evolved and here two separate activities were developed, one by W5 and one by . The nature of the project meant that the show was supported by UWE to a greater extent than the workshop.

Recommendations

1. **Targeting older age groups worked well in delivering the project messages.** The schools approach could be tried at other venues, although the extra effort required to manage schools bookings should not be underestimated.
2. **Including a strong definition of a robot and reinforcing it throughout the show worked well** and the audience's learning points were the clearest of all the collaborations so far (however this was also the oldest audience).
3. **A collaborative roll-out project such as Robot Thought is not an ideal vehicle to test completely new activities such as the workshop.** It is difficult for all partners to offer appropriate support on a relatively large scale. It would be more appropriate to pilot new activities on smaller audiences first to allow changes to be made.
4. **Learning points for LEGO workshop-type events** included: thorough preparation including pre-programming, assigning team roles to participants, clear briefing for facilitators, don't give out more kit than is needed and keep it as simple as possible!