Talking Robots: A Critical Examination of Strategies for Public Engagement with Robotic Technologies – A Summary

Robotics encompasses a broad range of academic disciplines including engineering, biology, neuroscience, psychology and artificial intelligence. It is a significant area of emerging science, and one where views regarding fact and fiction are particularly confused. How will robots impact on our daily lives? How intelligent are robots? What do robots tell us about the meaning of life? These are just a few of the questions publics may pose about future developments.

Roboticists are keen to engage people with emerging developments within the field. The EPSRC-funded Engineering Stage Award 'Walking with Robots' (www.walkingwithrobots.org) is one of many current examples of projects that seek to increase public awareness and appreciation of robotics research. For participants, the 'Walking with Robots' project is not just an engagement *about* robots but an engagement *with* robots as participants discuss, interact and engage, often with examples of the technology itself. 'Talking Robots' utilised this existing series of events, alongside other activities organised by science communicators and robotics experts, for research on two areas of emerging interest.

The project aimed to:

- Investigate existing public attitudes to robotic technologies and their potential social impacts.
- Examine engagement strategies and their effectiveness, using robotics engagement events as examples.

The project achieved this via the following objectives to:

(i) Analyse current public attitudes and views to an emerging and significant area of controversial techno-scientific development (robotics).
(ii) Study the process of engagement between a variety of scientists, academics, communicators and audience participants.
(iii) Assess the impact of a range of engagement mechanisms including; public meetings, forums, live events and hands-on workshops.

The 'Talking Robots' project focused on public attitudes towards robotics (as an up and coming area of science and technology) and the types of approaches to engagement that were utilised within the robotics field. It sought to explore how individuals view robotics research, what public concerns exist about robotic technologies, and how people could become engaged by these topics. Participant reactions to eleven engagement events with a robotic focus were examined via 11 structured observations, 8 video observations and 61 semi-structured interviews. The semi-structured interviews involved three distinctive groups and perspectives of those involved in activities: 1) event organisers who arranged the activities, 2) engagers or experts that were involved in the activities, 3) audience participants or people who were engaged in activities.

The projects key findings include:

- Perceptions of robotics are heavily influenced by media coverage and science fiction. This is recognised by both those who seek to engage publics and audiences alike and appears to make people more receptive to robotics than some other areas of science and technology (in particular ones which have generated media 'scare stories').

- Specific areas of robotics seen as controversial include their use in industrial settings, by the military and medical/social care. Many concerns focus on the perception that

robotics could replace humans or use human-like qualities (judgement, morality etc.) inappropriately. Engagers and audiences alike are open to discussion here and more work is needed in terms of how robotics impacts on our views and perceptions around humanity and social interaction.

- Key questions of interest include how robotic is something? What qualities does something need in order to be defined as 'robotic'? And where will this take us in future generations?

- Engagers and audiences have a range of motivations for becoming involved in public engagement activities, including pragmatic choices, interest in a subject area, and their potential to inform, educate and entertain.

- Traditional notions of the need to increase understanding, awareness and information, drawing on concepts of scientific literacy and public understanding of science (as opposed to public *engagement* with science), remain pervasive amongst public engagers and audiences alike.

- Engagers who participate see value in receiving public recognition and comment on their field of research, though it is unclear to participants how public questions or attitudes can or may influence the research in question.

- Perception of the policy role public engagement might take is difficult for publics to conceptualise. Who should be 'engaged' and how their views can or may influence were topics for discussion. This was the case across activities, including those with a more active policy or two-way remit.

- Publics have particular expectations of 'expertise' and how this should be presented; these expectations may sometimes be contradicted by more informal activities.

- Practical aspects including facilitation, structure, organisation and awareness of the audience are central to an activity being perceived as successful. Appropriate planning and time to organise public engagement become problematic if they are overlooked.

A considerable amount of learning has occurred with regards to the use of video data within this type of project and the video data is subject to ongoing analysis. This aspect will form part of the later dissemination of project findings, which have to date been circulated via the project website, presentation at academic conferences (including science communication, robotics and social science focused) and via professional networking. At least six future conference papers/sessions are planned, in addition to at least three journal publications currently in the process of being written. We also plan to continue our communication with practitioners and wider stakeholders to ensure the project findings are utilised by those working within public engagement.

'Talking Robots' was an innovative, small-scale project, which sought to draw together, in an interdisciplinary manner, work occurring at a broad level and across three different academic communities. It has highlighted a variety of opportunities for future work both in terms of public attitudes towards robotics interaction and public engagement settings, as well as demonstrating willingness amongst the public engagement community to participate and 'contribute' their activities to research of this type.

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