

Collaborating with Space-related Research Institutes, Government Agencies and an Artistic team to create a series of Space-themed public events in Ireland in 2014

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Abstract

A suite of informal interactive public engagement initiatives was created, to promote the importance of Space exploration, to ignite curiosity and discover new and engaging platforms for science in the Arts & in STEM Education, and to increase awareness of careers in Ireland's Space science industries.

These included: (1) 'To Space' - A live multimedia theatre performance aimed at the general public & young adult, (2) an adaptation of 'To Space' for 13-17 year old students entitled 'ToSpace for School leavers' and (3) 'My Place in Space', created for families.

Blending humour, warmth and humanity and positioning science within story is a highly effective public engagement tool in igniting curiosity across many audience types. The nurturing and investment of artists working within these new cross-disciplinary relationships should be encouraged and supported to further broaden and develop new methodology in public engagement of the planetary sciences.

1. Introduction

In Ireland, the government warns that interest in Science among school leavers in Ireland is waning, but that science and technology is key to future economic growth and development¹. Research centres in Ireland are obliged to invest in public engagement initiatives, to disseminate their work². Current forms of public engagement are limited to panel discussions and other non-participatory forms of communication. There is scope to consider new and engaging platforms for communicating the sciences to a diverse audience demographic. Dr. Niamh Shaw, scientist/engineer and performer is passionate about igniting people's curiosity and is interested in making new forms of public engagement, laying in the middle ground between Arts and science.

2. Objectives

To create a series of public engagement events utilizing a collaboration between CIT Blackrock Castle Observatory, ESERO Ireland office of Science Foundation Ireland, European Space Agency Research and Technology Centre (ESTEC), Dr. Niamh Shaw and a number of theatre, and other multimedia artists, to create work which would fulfil the following criteria:

- (1) To stimulate interest and debate about the importance of Space Exploration.
- (2) To radically re-invent science, ignite curiosity again, and discover new and engaging platforms for science in the Arts & in STEM Education.
- (3) To increase awareness of careers in Ireland's Space Science industries and research fields.
- (4) To awaken people's natural curiosity in STEM

3. Methodology:

The work was created through an intensive 6 month research phase by Dr Niamh Shaw, whilst artist in resident at CIT BCO and funded by Science Foundation Ireland's Discover Programme 2014. Collaborating between CIT Blackrock Castle Observatory, ESERO Ireland offices of Science Foundation Ireland, European Space Agency Research and Technology Centre (ESTEC), a series of site visits to these facilities was achieved, interviewing scientists, engineers, and former astronauts to incorporate new and innovative scientific discoveries in space science & its related disciplines. This research was then crafted by the artistic team to create an informal, cross-curricular lecture/performance on STEM, Space Exploration & its human implications, using multi-media, movement, personal memoirs and content from ESERO, Irelands Space-related industries & researchers, astronauts & space centres internationally. The research also explored the wider

social & cultural implications of Space exploration and the realistic possibility of human colonization of Mars as a possible solution to the dwindling energy & food reserves on our planet to sustain human life long-term³.

4. Results & Discussion:

Three related pieces were created, aimed at 3 separate demographics:

(1) 'To Space', A live performance aimed at the general public & young adult, to inform them of the human effort of space exploration in engaging and entertaining platforms. The success of this piece emerged from critical & theatrical reviews published in the national press & in journals^{4,5}. The show was initially presented as a 'Work In Progress' event at The Festival of Curiosity in both Dublin (Smock Alley Theatre) & Cork (Blackrock Castle Observatory) venues. The full theatre show 'To Space' premiered at Science Gallery from September 8th -14th as part of Tiger Dublin Fringe Arts Festival^{4,5,6,7}. In addition a special one-off performance occurred at The LAB as part of Dublin City Council Arts Office annual Culture Night celebrations. In 2015, 'To Space' toured Ireland nationally and will be performed at Summerhall venue at Edinburgh Fringe Festival 2015 with the support of CultureIreland. In 2014 'To Space' was performed a total of 10 times and was seen by 680 audiences. Response to the piece was very strong, indicated by excellent critic reviews in national press and online^{4,5} and its inclusion in European Space Agency communication sources⁸.

(2) 'To Space for School leavers', an adapted piece for secondary school students to increase their awareness of Ireland's involvement in Space Exploration & to remind them that STEM is everywhere and that they have permission to dream big. This show toured nationally as part of World Space week 2014 and National Science week 2014 events in conjunction with ESERO Ireland, CIT Blackrock Castle Observatory, Cork, Armagh Planetarium & Dunsink Observatory as well as theatre venues in Dundalk, Dublin and Carlow. Careers events & discussions with the students about STEM careers in the Space industry were held afterwards, to provide further support for students with any queries about pursuing a career in STEM. In 2014 'ToSpace for School leavers' was performed 12 times and was seen by 570 students. Careers events

& discussions with the students about STEM careers in the Space industry were held after each presentation of 'To Space for School leavers at CIT Blackrock Castle events, to provide further support for students with any queries about pursuing a career in STEM. A suite of Space Industry Career videos were prepared from interviews during the research phase of the project and posted on Science Foundation Ireland's careers portal SmartFutures, to promote careers in STEM¹¹.

(3) 'My Place in Space' A family workshop and highly interactive event telling the story of our place in Space⁹. Taking the audience from the smallest thing to the furthest reaches of the Observable Universe, making our Solar System, smashing atoms, and creating a human Carbon model to show how we are truly made from Stardust. 'My Place in Space' was presented at Festival of Curiosity, the Mallow Science Fair and The Curiosity Lab as part of Science week 2014. This workshop was also brought to art spaces including VISUAL gallery in Carlow. 'MyPlace in Space' was performed 8 times and has been seen by 420 people.

A key strategy of Dr. Niamh Shaw's presentation style of mixing art with science was to engage the audience in new ways, crafting a narrative on which to hook scientific content. It was shown that the result of this style of performance encourages audiences to learn subliminally whilst being entertained in a new non-threatening way, whilst accessing their innate sense of curiosity & wonder. In all 3 presentations (To Space, To Space for School leavers, My Place in Space), this strategy was highly effective in delivering the core science behind Space exploration and was particularly effective among new audiences to science events and school leavers, as indicated by favourable theatre reviews^{4,5}, online promotion of these event on European Space Agency¹⁰ and Science Foundation Ireland websites and audience numbers.

All 3 performance pieces (To Space, To Space for Secondary schools & My Place in Space) were presented in very accessible forms, clearly delivering the rationale behind Space exploration and the wealth of Irish talent involved in the Space industry^{11,12}. From many post-show discussions & audience feedback, it was apparent that this content stimulated audience curiosity about Space and also helped them

understand a little better the importance of Space exploration and Ireland's role in it.

Placing the events in dedicated Arts & non-educational, community performance spaces, such as the Science Gallery Dublin, was shown to be an effective method of public engagement where the traditional learning platforms for the audience were altered, and where space science was presented in a new, more human context.

6. Summary and Conclusions

Telling science within a story and placing the human at the centre of the narrative is highly effective, but recommend that this type of work, and artists collaborating in this cross-disciplinary form require further nurturing and support.

The Space industry and research centres in Ireland are keen to participate with ESERO Ireland and public science learning centres in initiatives to promote careers in STEM.

Bringing Science within new forms of public engagement is an effective tool in igniting curiosity across many audience types.

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