scottish universities insight institute

mobilising knowledge for a better Scotland

Changing lives through STEM

The 'Changing lives through STEM' programme consisted of three highly interactive workshops under the broad theme of exploring how better engagement between university-based STEM researchers and families, children, schools, teachers and industry could help address major social challenges. Each workshop took as its specific theme one particular challenge: workshop 1 focussed on early years education, workshop 2 on addressing poverty and inequality, and workshop 3 looked at international and industry perspectives and opportunities. While a wide range of exciting and inspired 'public engagement' STEM activity already emerges from Scottish universities, the aim of the workshop programme was to focus thinking on how STEM engagement could help address these specific and definite social challenges: going beyond 'how do we do better engagement?' and asking how STEM engagement can directly help with poverty, inequality, international development and so on.

Participants came from a very wide range of backgrounds, including teachers, researchers (both those experienced in public engagement and those new to it), charity workers, education specialists in councils and other bodies, industry engagers and others. This range of experience was one of the most striking aspects of the workshops in practice, where we heard ideas and opinions that drew from a wide set of perspectives. Of course this also meant participants had a variety of goals, from wanting to build new partnerships to get new ideas and inspiration, to simply wishing to spend a day exploring creatively some of the possible ways to address the identified challenges.

Importantly the workshops also covered a wide geographical area, taking place respectively in Glasgow, Dundee and Edinburgh. Participants came from as far afield as the Highlands, the Borders, East Lothian and West Dunbartonshire.

An international perspective was delivered by guest speaker Sarah Hayes from the University of Limerick discussing her experiences with European-wide engagement projects, while the energy company EDF generously sent their three-person engagement team from Torness to talk about their work enthusing the next generations of STEM experts. We also heard from Save the Children Scotland and the careers-focussed charity Founders4Schools.

Beyond keynote talks however, the key to the workshops was undoubtedly the interactive discussion sessions, giving participants the chance to swap ideas and experience, develop plans and catalyse new partnerships. This was the real and quite simple goal of the programme: to get this wide range of people together in one room, present them with these major social challenges, and see what inspired ideas and outcomes might emerge. Judging by participants' feedback and comments, the workshops succeeded in generating new thinking and refreshing everyone's perspective on how STEM engagement can be done and how it can make a real difference to social problems.

We plan regular follow-ups over the next few months to track emerging new projects and partnerships. The challenges we set out to address are not going to be solved in a few days of talking: but if we can use these workshops as the start of a sustained programme of new thinking and new collaborations, we will have had a real impact.

Some key ideas, plans, outcomes, recommendations

The workshops were arranged around interactive discussion groups challenged to evolve `big ideas', `next steps' and so on. We list a few here (full scans of notes from all discussions are available on the SUII web page for the programme):

1. Early years workshop

Cluster approach: sustainable relationships by linking early years to primary and secondary. Put pupils in driving seat - older pupils helping to enthuse and guide younger.

Parents: bring parents and families into schools, develop activities wherein parents can engage with their children, especially in early years - to increase parents' motivation to take responsibility and help schools in promoting STEM development

Stories: STEM stories in Bookbug (current Scottish Book Trust supported literacy scheme). The importance of stories for early years learning and the links between literacy and STEM development.

2. Poverty and Inequality

The EastEnders Model - storyline approach to gain impact on how people relate to social issues - can this be used as a new model approach to engaging people with STEM? Use full spectrum cultural approach beyond `flashy technology' or `geeky science'?

More development of useful evaluation to help design successful activities - evaluation as useful for the future rather than measuring impact in the past. What is success?

Visibility of STEM careers - beyond `pure science'. Especially important to involve parents and families to overcome entrenched `social traditions' that limit opportunities and ambitions.

Work with the audience from the start - develop activities in tandem with the target audiences, according to what they need, rather than creating something and hoping it might be useful…

3. International and industry

Use existing international links - schools twinning and exchanges, research networks, links into existing international networks via individual contacts (so you don't have to build the whole network yourself)

Aspirations - international can inspire, but need local angle to engage people rather than make them think `this isn't me'

Barriers - time, resource, role of university internationalisation is more about recruitment than engagement

Industry involvement - workforce planning, rapidly changing employment and technology means people need STEM capabilities to adapt to new careers and businesses need STEM people to operate at all

How to network together - academia, industry, SMEs, professional bodies, schools, government, community groups, charities… cross-disciplinary audiences in development projects and workshops (such as this one) are vital and rare