

Scottish Crucible Alumni Network

Examples of tangible impacts of undertaking Scottish Crucible programme

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Dr Hannah Burrows - Scottish Crucible 2017

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I'm currently a lecturer in Scandinavian Studies at the University of Aberdeen. I research and teach the literature, culture and society of Viking Age and medieval Scandinavia.

I was fortunate enough to be part of the 2017 Scottish Crucible cohort. It was an amazing privilege to meet the other Cruciblists and learn about the exciting work being done by young researchers in Scotland. As a researcher from the Arts and Humanities, I did have a few anxieties about what I might find to talk about with scientists and engineers. But everyone's openness and willingness to forge connections was really inspiring and immediately made me scale up my thinking about possibilities for interdisciplinary and collaborative projects. One of the most exciting (if exhausting) parts for me was the speed collaboration event, which amazed me in how connections – sometimes small-

scale, sometimes more substantial – could be found with almost everyone and in such a short time.

One immediate and tangible result coming from Crucible for me was that following some fascinating discussions with fellow Cruciblist Miranda Anderson (Edinburgh), I developed a paper exploring how the mind was understood in Old Norse pre-Christian poetry, which will be published in Miranda's co-edited, collaborative series on the history of concepts and practices of distributed cognition (that the mind, or cognition, extends across brain, body and world). The interdisciplinary research for the paper has definitely influenced my thinking about other aspects of my work, and I'm sure it will continue to develop in interesting directions.

Since participating in Crucible I have taken up an Arts and Humanities Research Council funded Leadership Fellowship. My project looks at how the natural world and natural phenomena are depicted in Old Norse poetry – in terms of poetics, politics, and early natural science. I've also been invited to give the keynote address at a student conference and travelled on an ERASMUS scholarship to teach in Vienna. Scottish Crucible really helped me to push my own boundaries: about what I could do (and enjoy doing!) in the workshops themselves, and beyond; about what being a researcher in the Arts and Humanities encompasses; and about where I look for inspiration and collaboration.

Dr Melanie Stefan - Scottish Crucible 2016

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I am a Lecturer in Biomedical Sciences at the University of Edinburgh. My research is on using computational modelling and data analysis to understand processes underlying learning and memory in the brain. I spend around 12 weeks of every year in China, where I teach Biomedical Sciences and Biomedical Informatics in a joint degree programme with Zhejiang University.

I was selected as a Cruciblist in 2016, when I was quite new to this position and indeed, to Scotland. Having moved to Edinburgh from abroad, I did not really feel at home as a researcher in Scotland until I participated in Scottish Crucible. It provided me with an insight into the Scottish research landscape, and connected me with an incredible network of other young researchers.

One of my interests is in using data from learning technologies to understand how students learn and improve instructional materials. With one of my fellow Cruciblists, Linda Ferrington (then at Queen Margaret University, now at the University of New South Wales), we started a project analysing data from online quizzes to assess the quality of quiz items. Linda presented this work at the Creativity in Science Teaching meeting at the Society for Experimental Biology in London. Another learning technology collaboration coming out of Scottish Crucible was the idea of developing digital games to teach cell biology. Together with Linda Ferrington, Szu-Han Wang (University of Edinburgh) and Karen Meyer (Abertay University), we presented the idea at Pharmacology 2016 in London, and applied for various funding schemes to support the development of a game prototype. Though we were ultimately not successful in securing funding, this has helped me a lot thinking about how I teach cell biology, and about using gamification in higher education.

The network of Cruciblists is a valuable resource, and I find myself coming back to it whenever I am in need of an expert in a field other than my own. For instance, we invited my fellow Cruciblist Poppy Lamberton to China last year to talk to our students there about her work on neglected tropical diseases.

On top of catalysing concrete collaborations, Scottish Crucible has also shaped the way I think about collaboration in general. The "science speed-dating" event during the second lab was both exhilarating and exhausting. But most importantly, it has equipped me with the courage to say 'yes' to interdisciplinary collaborations, and to explore new areas of scholarship. It is nice to see this reflected in my publication record over the past two years. Similarly, the media training at Scottish Crucible (and the fabulous Vivienne Parry) have made me more comfortable with exploring media opportunities, such as agreeing to be interviewed for a careers podcast.

Two years after completing the Scottish Crucible Fellowship, I feel strongly that once you are a Cruciblist, you are a Cruciblist forever. This is indeed facilitated by the way the Crucible is organised, with networking events and other opportunities for fellows of different cohorts to meet and interact. I have gained a lot from those interactions, and am always happy when I meet another Cruciblist again at a conference or seminar. There is an ongoing sense of community and belonging. Much like the Hotel California, you can check out, but you never leave.

Dr Karen Meyer - Scottish Crucible 2016

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I am a lecturer in Applied Mathematics and researcher in Solar Physics at Abertay University. I attended the 2016 Scottish Crucible. The workshops were engaging and informative. I think that they really boosted my confidence as a researcher, and opened my eyes to the importance of interdisciplinary research and creativity. It was a fantastic opportunity to meet other early career researchers and to learn about the research being conducted in Scotland

across such a wide variety of disciplines. I particularly enjoyed the workshop on media, public engagement and informing policy. I have since become a STEM ambassador, and regularly engage in outreach at science festivals and in schools.

Since the Scottish Crucible:

- (i) I have successfully obtained a Carnegie Research Incentive Grant to fund a project simulating the effect of small-scale processes on the evolution and decay of solar active regions.
- (ii) I obtained a travel grant from the Royal Observatory of Belgium to work on a collaborative project with their PROBA2 science team. The project uses observations from their satellite PROBA2/SWAP to validate and inform the development of simulations of the Sun's global magnetic field structure and evolution.
- (iii) I now co-supervise an interdisciplinary PhD project, developing a fluid-aerosol solver to model cloud formation in brown dwarf and exoplanetary atmospheres.

Dr Stella Chan - Scottish Crucible 2016

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My name is Stella Chan. I am an Academic Clinical Psychologist based at the University of Edinburgh.

I have to be honest that when I applied for the Scottish Crucible, the biggest motivation was to advance my CV. While being selected for a nationwide leadership programme through a highly competitive process no doubt has enhanced my CV, I soon became aware that the true gain was much more than that. The Scottish Crucible has provided a much needed space for me to reflect on my career, identify gaps and limitations, and build confidence and skills to move forward. This was made possible through the intense residential workshops; there is nothing like being 'trapped' for 48 hours (three times!) with other early career researchers to heighten one's sense of purpose! The variety of speakers was

incredible, from senior academics to industry partners, and from policy makers and funding bodies' representatives to journalists.

The most memorable part for me was a session where established academics shared their failure stories. We have all heard plenty of successful stories, but hearing failure stories have been truly inspiring. Above all, I am really grateful to have met so many other early career researchers, and many of whom have since become my friends and supportive networks. Thanks to Scottish Crucible.

Dr Sandy Brownlee - Scottish Crucible 2016

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I participated in the 2016 Scottish Crucible after seeing a colleague's enthusiasm for the programme. The experience was intense but very rewarding and I highly recommend it to other early career researchers. The parts on engaging with media was particularly interesting for me and helped me reach a whole new audience: I have since been able to write a few articles, one of which was picked up by Scientific American, reaching over 30k readers.

My research is in optimisation and machine learning, and I have conventionally worked in application areas very close to computing and engineering. Crucible certainly opened me up to working with disciplines quite unlike my own. Following the programme, I was privileged to lead a team comprising an artist, a psychologist and a neuroscientist looking at using optimisation methods to better understand how groups of people associate sounds with particular places and their moods. The project has produced some fascinating results and we are currently exploring where to go next. It really wouldn't have happened without Crucible.

I've also been more bold in reaching out to other disciplines. In early 2016, I led a team spanning Computing, Maths, Environmental Science, Arts and Social Science in a "Dragon's Den" event at Stirling. Our team were awarded £220k to explore ways of analysing social networks, geographies and big data technologies to promote equality, inclusion and fairness. As well as rewarding research, these experiences have also been crucial in my career development, in particular they were highlighted by the panel in my recent appointment as a Lecturer. I'm now excited for the next steps with my new network!

Dr Elaine Webster - Scottish Crucible 2013

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Participating in Scottish Crucible allowed me to develop skills and networks that have contributed to success in a number of ways. Firstly, I worked with two researchers from the same 2013 cohort to present an experimental project idea, bringing together human rights law and theory, health geography and nurse education (*Dignity Narratives in Nurse Education* with Leah Macaden and Sarah-Anne Munoz). We were awarded Crucible funding, which led to a collaboration with a Crucible Alumnus (Richard G Kyle) and the completion of a successful project. This project led to three journal articles, a practitioner publication, work with three postgraduate students and a postdoc who were able to participate in the research, and several conference and poster presentations. We are now drafting a further funding application for a three-year project, which will develop this research.

The experience of participating in Scottish Crucible not only provided an opportunity to collaboratively explore a new area, but helped me to distil the essence of my individual work. This was a key, if somewhat unexpected, benefit. Through interdisciplinary conversations I gained a clarity about the core thread running through my *own* research and its potential impact, which made the process of my most recent project – a single-authored monograph – flow easily.

The broader benefits of participating in Crucible are many, but these are some that have shaped my own trajectory: Drawing upon the *Dignity Narratives in Nurse Education* project, I led an engagement event with a group of undergraduate nurse education students at Glasgow Caledonian University as part of the EU-funded European Researchers' Night in 2016; I was invited by my University's Research and KE team to join the steering group of a flagship public engagement programme held at Strathclyde, and to co-host (with a Chemist!) a researcher development module on Public Engagement and Impact; and I successfully applied to the Royal Society of Edinburgh/Caledonian Foundation European Visiting Fellowship fund, which allowed me to undertake research on European Human Rights Law in Belgium and in the library of the European Court of Human Rights in France.

I have benefited in less tangible ways also: Crucible made me appreciate how much I was part of a community of researchers in Scotland who could make a positive contribution to addressing today's global challenges as they manifest here at home, and abroad. I gained a nuanced understanding of what 'interdisciplinarity' really means – I am confident in discussions with researchers from other disciplines; no research field intimidates me now! I gained useful practical skills also – I made my first ever poster to present at a Crucible session (at that time, this was not a common endeavour for lawyers...) and the next poster I made was shortlisted for a best poster prize.

To sum up the impact of Crucible: for me, it was a rich reminder of why it pays off to be genuinely curious in our research, and that to reap the most impact we need networks and we need skills.

Dr Maria Ana Cataluna - Scottish Crucible 2012

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Let's go straight to the point: the atmosphere of the Crucible Labs is just simply electrifying. Sparks and possibilities that you had never considered before get your mind buzzing and thinking about all the connections, new ways of working together and entirely new forms of wider impact. I would say that in addition to connecting with like-minded people, there were two other Crucible highlights for me.

The first was to have the chance to understand how evidence-based policies are developed and what positive impact one's research/expertise can have in the wider society as result, if researchers do not shy away from getting involved in the debate of the big societal questions of our time. This spurred me to become a member of the Young Academy of Scotland. As a YAS member, I've also

been an active contributor to a Royal Society of Edinburgh Working Group, looking at the impact of Brexit on research, innovation and tertiary education, which has generated various advice papers and submissions to calls for evidence. In this context, I've led a YAS initiative that aims to capture the impact on those affected by Brexit in these sectors – the Brexit Observatory – collating and publishing personal testimonies, in order to raise awareness and inform negotiations. These findings have also been submitted to several calls for evidence and the Scottish Government, disseminated at various public events and discussed by MPs and MSPs (and it was even mentioned by an MSP in a Scottish Parliament session). More recently, I was invited to present this initiative and report at a symposium in Austria, on "Brexit and Academia". In my mind, there is no doubt that the experience of being a Cruciblist gave me the awareness, motivation and confidence to make a contribution (even if humble) and help inform the Brexit public debate.

The second highlight was the encouragement to embrace our creativity and become more adventurous in pursuing unconventional directions and collaborations. One of the many Crucible activities that encapsulated this was the speed-dating and the attempt to find common interests with each of the applicants (salmon farming and lasers – just an example!). The "creativity toolkit" I got from participating in the Crucible has been very helpful in brainstorming and forging new research directions, helping me develop a successful bid for an ERC Starting Grant (€2M, 2015 – 2010), a scheme which supports high-risk/high-gain research.

Dr Joanna Cloy - Scottish Crucible 2012

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I am a soil scientist and I participated in the Scottish Crucible programme in 2012. The programme was an excellent opportunity to meet and collaborate with academics from a wide range of disciplines at different stages in their careers and based at institutes across Scotland. Workshops that took place in Edinburgh, Glasgow and Dundee were packed with challenging research-focussed tasks, informative talks from more experienced academics, as well as plenty of fun social activities. The programme really inspired me to think about my research in new ways and see the value in working as part of an interdisciplinary team to tackle grand challenges at national and global scales.

Scotland's Rural College (SRUC) is a world-leader in agricultural science, climate change and food security, leading and contributing to national and international research programmes. Agricultural and veterinary research at SRUC and the University of Edinburgh has

been ranked as most powerful in the UK in REF2014. I have been a Researcher at SRUC since 2011 and previously held Research Fellow and Temporary Lecturer positions at the University of Edinburgh. My current research focuses on agricultural soil systems (arable and grassland) under different management activities. I am interested in soil structure and quality, soil carbon and nitrogen dynamics, greenhouse gas emissions and mitigation.

After completing the 2012 Scottish Crucible programme, I collaborated in an interdisciplinary research project where a team of Crucibilists from the Universities of Robert Gordon (PI), Heriot Watt, Strathclyde, Stirling and the Glasgow School of Art explored how computer games could promote sustainable behaviour. The six month long pilot study was funded through a Scottish Crucible Grant. Our findings were presented at conferences and led to us working together again a year later to write a research proposal on 'sustainable water use'. We were led by a truly wonderful and inspiring researcher from Robert Gordon University, Dr Joanneke Kruijsen, who sadly lost her battle with cancer a few years ago.

Since participating on the proposal, I noticed that I could realise the potential for new and exciting opportunities for my area of research and my ideas seemed more creative. Also, my confidence in working with scientists from different backgrounds as part of a team grew stronger. It was great to get scientific advice, access to sophisticated analytical techniques, share knowledge and have some interesting conversations about research experiences with like-minded enthusiastic researchers. I have maintained great connections with the people I met on Scottish Crucible and continue to encourage other SRUC researchers to attend the programme.

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