

**RCUK PUBLIC ENGAGEMENT WITH RESEARCH: SCHOOL-UNIVERSITY PARTNERSHIPS  
INITIATIVE (SUPI)**

## **FINAL REPORT - UNIVERSITY OF STRATHCLYDE**

**SUPI PROJECT NAME: MUSE (MODELS OF UNIVERSITY- SCHOOLS ENGAGEMENT)**

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## 1: THE 'STORY' OF YOUR SUPI PROJECT

The University of Strathclyde's MUSE (Models of University Schools Engagement) project ran from May 2013 to December 2016. Strathclyde as an institution is committed to public engagement, and with its roots firmly in the Glasgow community, is keen to endorse activities which encourage the Widening Participation agenda. As such, MUSE was ideally placed to capitalise on this ethos. Prior to MUSE funding, Strathclyde had a clear commitment to Public Engagement (PE), signing the NCCPE manifesto in 2011, but we were conscious that much of the activity was *ad hoc*, with University colleagues more likely to engage with, say, their children's schools or organisations with whom they already worked. This was largely through reasons of practicality – it's clearly easier to build on existing relationships than create new ones from the start, especially for time-sensitive academics – but there was also a sense that schools' engagement more generally was not perceived as a 'legitimate' use of academic time, and tended to fly under the radar in terms of workload allocations. Further, there was no centralised resource to support this work.

One of the first things initiated by the PI, then an Associate Deputy Principal, was to ensure that PE was recognised in the University's Accountability and Development Review process, under the 'citizenship' strand, to ensure colleagues received appropriate credit. Further, the MUSE application requested a block of time, at Grade 9, to ensure that academics engaged with MUSE received buy-out; this was done explicitly to emphasise that schools' engagement is a valid academic activity, and was useful in securing academic involvement at the beginning of the project.

Initially, 3 schools were identified to participate, in Bellahouston, Knightswood and Springburn, representing schools which have traditionally sent fewer pupils on to higher education. The project would bring together a number of recent initiatives at the University, with a view to creating replicable and sustainable models for university- school engagement which had benefits for the university participants, teachers and schools. Over its funded period, in-school MUSE projects worked with over 300 pupils in 8 schools, and the Explorathon model enabled us to reach almost 1900 pupils from 50 schools.

### Year 1

**VIPs:** Our original ambition involved using Strathclyde's Vertically Integrated Projects (VIP) model, which gives students from first year through to postgraduate level the opportunity to work with staff in multi-disciplinary teams on cutting-edge research and development projects, and applying this in schools. Our hope was that after running the VIP for a period, the schools would ultimately take the lead, with senior class years mentoring more junior years, and potentially bringing other schools on board. We used a 2 pronged approach: identifying and supporting existing VIPs to extend their reach into schools, and setting up a new VIP, Glasgow's Identity, Language and Technology in the Past Century (GILT-PC) specifically to address the three core cross-curricular areas of the Scottish Curriculum for Excellence (CfE) – literacy, numeracy and health & wellbeing – chosen to promote interdisciplinary learning.

**Mentoring:** We discovered an appetite from one of the schools to trial a mentoring model. This was largely unanticipated, but conscious that schools had their own interests and needs, we were keen to keep them on board in the critical first months. Mixed outcomes from mentors and pupils, together with difficulties of co-ordinating meetings with pupils and expensive PVG checks, resulted in the decision not to run the mentoring project again in Year 2.

### Year 2

A key learning point from Year 1 was the need to be mindful of what the schools wanted and not simply try to deliver engagement projects which fitted with a certain theme. Although the original projects were still running, we felt that the VIP model was not alone a strong enough pipeline for new projects and the idea of a multi-year undertaking may limit those researchers who wanted to engage. We decided to increase the scope for projects. We hoped that if projects were particularly successful, they may become VIPs in time, and in Year 2 we supported a number of curriculum-led projects initiated by the schools. We added 2 more schools in Year 2, and looked outside the University for collaboration opportunities.

**Partnership working:** With some positive examples to showcase, internal and external partners began to contact the project with ideas for collaboration. This was both cost- and labour- effective. Examples include securing match funding from The Carnegie Trust to extend MUSE's reach into a feeder primary school and also providing advice and support to other colleagues' work, including helping the Industrial Biotechnology and Innovation Centre to engage with schools across Scotland, and working with Nuffield on their placement scheme (8b)

**Training:** Schools' engagement activity was recognised as credit bearing on the PG Cert in Professional Researcher Development, which helped to recruit researchers to the project.

### Year 3

By Year 3 we had established projects with 7 schools. Broadly, our projects could be divided into 2 categories, the long term, multi-year VIP route and the shorter term curriculum-led route. Both routes required significant input from the Strathclyde team to maintain them, with multi-year projects being mostly unsustainable due to the amount of academic time required. Shorter term projects were more sustainable from the academics' perspective, and easier to organise for the schools, but still required a huge amount of coordination.

**CPD:** Although teachers involved did report skills development, the MUSE project did not on its own directly deliver teacher CPD, due to a lack of time/ demand from the schools and an apparent preference from the University colleagues to work with pupils. We evolved a sustained collaboration with the Marie Curie International Training Network *Stardust* which, with the SSERC (Scottish Schools Education Research Centre) and as part of the RCUK Bringing Cutting Edge Science to the Classroom programme, involved a CPD event for teachers and N5 pupils across 10 schools in Glasgow. This led to a number of initiatives- see 2c (part 9) and 4b, below.

**Sustainability:** Conscious of the benefits of partnership working, we linked with a wider pool of expertise to help us sustain MUSE activity after the funding period, notably the Children's University and the Strathclyde Widening Access team. Another key route, the STEM Hub, was due to launch in 2016, with an ambition to act as both a facility and a facilitator to coordinate activity, bringing together Glasgow City of Science, Glasgow Science Centre, industries, schools, colleges and Universities across Glasgow to promote and deliver STEM activities for young people. This would help manage the curriculum-led projects route.

### Year 4

While it was clear that while the intended long term VIP model had made terrific progress, it required more resources to maintain than the schools could reasonably manage themselves. Furthermore, in order to commit to a multi-year project requiring significant academic input, University colleagues needed the projects to be closely aligned to their own research interests; although clearly not impossible to achieve given the success of the existing long term VIP models, this approach was unlikely to become the primary model of engagement, suitable only for a small number of highly relevant projects with well-established relationships. Moreover, another sustainability route, the STEM Hub, was delayed. The success of the partnership models had demonstrated significant benefits, both in sharing the financial load and in widening reach and practical support, and is exemplified in our final model:

**Explorathon:** we were able to bring MUSE learning to universities across Scotland and to 50 schools. A key benefit to this model is that it renews annually, allowing reconnection in the cases (as in Drumchapel) when a main contact leaves and the relationship is lost. It allows for University colleagues with limited time to engage with schools, and also enables the identification of follow-on activity. The success of Explorathon far exceeded our initial hopes for the MUSE project, and through Explorathon, we were able to share our learning and experience to support Universities from across Scotland. Funding is already in place for Explorathon in 2017.

Further details on our ongoing strategy and sustainability plans are outlined in section 9.

## 2: KEY FINDINGS, LEARNING POINTS AND ENGAGEMENT ACTIVITIES

### a) Please list the key findings from your SUPI project

Our aim for MUSE was to trial a number of different mechanisms to identify ‘what works’ with a view to creating a sustainable and replicable model for schools’ engagement. We list the models and findings below:

- **Vertically Integrated Projects- long term**

Our original ambition involved using Strathclyde’s VIP (Vertically Integrated Projects) which gives students from first year through to postgraduate level the opportunity to work with staff in multi-disciplinary teams on cutting-edge research and development projects, and applying this in schools. Our hope was that after running the VIP for a period, the schools would ultimately take the lead, with senior class years mentoring more junior years, and possibly bringing other schools on board. We used a 2 pronged approach: identifying and supporting existing VIPs to extend their reach into schools, and setting up a new VIP, specifically to address the three core cross-curricular areas of the Scottish Curriculum for Excellence (CfE) – literacy, numeracy and health & wellbeing – and was chosen to promote interdisciplinary learning.

**GILT PC:** The new VIP – Glasgow’s Identity, Language and Technology in the Past Century (GILT-PC) was created to be a curriculum-led backbone around which departments across the University could engage with schools. GILT-PC was closely aligned with the research interests of the academic lead, Professor Geri Smyth, and significant effort was invested in research workshops and events to generate interest and identify potential leads within the University for schools projects. This approach generated two of the initial MUSE projects (Case studies 1 & 2), which ran all throughout the funded period and were viewed as very successful. However, following the retirement of Professor Smyth, GILT-PC did not produce the intended pipeline of new projects. In addition, GILT-PC only covered a part of what schools were seeking from projects.

**Existing VIPs:** After consultation to identify some ‘quick wins’ only 1 of the existing VIPs was suitable to go into schools (Case Study 3). However, taking place on University campus, outside school hours, meant that only the most engaged pupils could attend. This project is still active and sustainable: Fablab remains open to both primary and secondary schools, with activities planned for either a single visit or for in the form of a club with regular visits.

These projects were successful in that they sustained interest and positive outcomes for the university and school participants involved. Moreover, some pupils from previous years did stay on and work with the newly recruited pupils, in the intended VIP model. However, VIPs were extremely labour intensive for both the researchers and coordinator, and ultimately, it was not thought to be a model on which the schools were able to lead.

**Short-term VIPs:** Another mechanism which worked well was to adapt the VIP model, which involved a range of academic and student career stages, to deliver short-term, curriculum-led projects, such as in Activchat (PhD student and undergraduates) or Substance Misuse and the Brain (Professor, Researchers). These shorter term projects, while not strictly following the multi-year VIP model, were easier to manage and attractive to University colleagues who could not commit to a multi-year initiative.

The Co-I, Professor Steve Marshall, worked with another colleague in Education, Robert Collins, to develop a VIP aimed at primary schools from some of the most deprived areas in Scotland (SIMD 1-40), and found it to be a resounding success. The key differences here are:

- Highly motivated and dedicated leadership in Robert Collins has ensured that the University student participants remain involved over the years
- Working with primary schools allows for a more flexible curriculum.

The success of this particular model demonstrates both the efficacy of the approach, and also that it requires to be led by a motivated academic, as opposed to our ambition that the schools would ultimately lead.

- **Curriculum-led projects initiated by the school**

These projects were closely linked to the school curriculum and aimed to help pupils to develop a deeper understanding of the subject through research, and tended to be one-off activities or short projects that closely aligned with the school curriculum- as above, these often involved several academic career stages. There was potential that short projects may lead to a more sustained VIP model as relationships and projects develop, but this has yet to be proven. A key advantage to these projects is that they attract research students who have limited time and are hesitant about making long term commitments. Short term projects can also be delivered more than once over an academic year and can involve different schools, such as the ten week project on the History of Medicine which ran in Bellahouston Academy in Year 3 and again in St Peter the Apostle High school in Year 4. Additionally, a number of these short projects were able to be recast for Explorathon.

- **Mentoring**

In response to school demand, we piloted a mentoring model, where 22 PhD researchers, ECRs, education students and STEM Ambassadors went into the school to work with groups of up to 5 pupils at a time. This was received with mixed responses from both the pupils and the mentors. However, in all the other projects which involved pupils interacting with researchers, the response was extremely favourable, with feedback emphasising that this contact made University seem more attainable and accessible. We hypothesise that the difference is in focus; the original model was explicitly aimed at 'getting better grades in your exams' (pupil factsheet) whereas the other projects had a research focus, so the mentoring model was almost a by-product.

- **Partnership working**

We found significant benefits in working with partners, in terms of boosting finance, spreading workload, delivering specialised activity and giving us a greater reach for the schools with whom we worked. For example, in the 'Substance Misuse and the Brain' project, working with the Carnegie Trust allowed us to fund complementary activity with a Primary 7 'feeder' school as they made the transition to secondary. The European- funded Stardust project allowed us to provide specialist CPD to teachers and pupils from 10 schools ('Asteroids') in a way which MUSE would not have been able to fund from scratch. In possibly the most significant development in the MUSE project, working in partnership with a Scottish university consortium allowed us to transfer MUSE knowledge to other institutions and reach almost 1900 pupils in a single day.

- **Promotion**

Closely linked to partnership working, significant effort was expended on promoting MUSE, both within the University and externally. Internally, the Schools Engagement Coordinator attended departmental and Faculty committees to present the MUSE project, and in the initial stages, the Vice Deans of Knowledge

Exchange were invited to MUSE meetings to keep them informed and to identify any potential projects. MUSE projects featured at University Research Day (Case Study 2), where pupils also got involved in judging the student poster competitions. This served to significantly raise the profile of MUSE within the University and helped to identify new project ideas.

External promotion involved working closely with the Glasgow City Council Education Authority through which we were able to reach out to promote the MUSE project to all schools within the Glasgow City area. As a result of this promotional activity we were approached by new schools wishing to get involved.

We also acted as a point of contact for other opportunities. For example, we were contacted by the Nuffield Foundation with a request to promote their Placement Scheme; Strathclyde hosted 4 pupils for 4-6 week placements in the Physics and Chemistry departments.

- **Public Engagement Group**

As part of the University's commitment to MUSE, we established a small internal Public Engagement Fund, which provided around £300 per application for equipment, consumables and/ or travel to support PE which was not eligible for MUSE support. This was managed by a small PE Group which initially met bi-monthly, but then moved towards primarily email contact to allow for quicker, more agile decisions. This proved to be a particularly useful model and helped to identify opportunities which may not otherwise have been noticed - for example, the Stardust project originally applied to PEG for support and we were able to match fund with PEG to provide the Asteroids CPD event.

- **Recognition for academic colleagues**

One of our fundamental mechanisms was to 'legitimise' academic involvement in MUSE by providing a funding package which included 5 days at 80% FEC for those who took part. In reality, this was more flexible, with some projects attracting between 0.5 days – 20 days depending on input. We found this extremely useful in the beginning, when faced with academics' concern about incorporating MUSE activity into already full workloads. Ultimately, however, feedback from the academics indicated that the time credited had little impact on activity; some academics put in significantly more effort than was able to be charged to MUSE, while for those working in the shorter term, the funds received were minimal in the context of Faculty and departmental budgets. More effective was the Accountability and Development Review recognition, which allows for PE activity under the 'Citizenship' strand.

- **Training and recognition for researchers and students**

In Year 2, we also got credit bearing recognition for schools' engagement activity on the THE commended PG Cert in Professional Researcher Development. This allows students and researchers to receive 1-5 credits depending on time spent on the project (1 credit is equivalent to 10 hours). Over the course of the project, 12 students received these credits.

## b) Please list the most important learning points from your SUPI project

The different models that MUSE worked with in terms of developing and supporting projects meant that the project was continually learning from experience. An iterative process of learning and development emerged which helped structure emergent projects. The sections below capture some of the areas in which the project gained experience and developed practice.

### **Good understanding of school contexts**

The Autobiographies Project was led by an academic from the School of Education and run by student teachers. Their understanding of how schools work, their schedules and timetables and various other aspects were viewed as fundamental to ensuring the project took place in the first instance, and was able to be successful. Further, the academic lead on 'The Unseen Seen' was herself a former teacher, and able to very quickly establish trust and rapport with the school's staff. Other academic staff reported that their lack of understanding of how schools function was a significant barrier to getting started and continuing with the projects. A strong relationship with school senior management to aid liaison and organisation was viewed as important, and the role of MUSE staff in helping to make connections with schools where a relationship did not already exist was viewed as essential.

## **Facilitation**

One of the key learning points from the project has been the need for careful interviewing of academic/research staff in order to match skills and programme content with appropriate schools and pupil age groups. This was viewed within the team as essential to a successful event and drew from experience within MUSE that underlined the need for careful matching of researchers with schools, curricular areas and appropriate pupil age group. For example, a key dimension to the success of Explorathon as a whole has been its success in collating researcher interests and engaging effectively with schools. The project engaged with researchers from both Strathclyde and Glasgow universities and a significant component to this work has been the introduction of MUSE evidenced training and guidance for researchers in terms of what to expect in schools. 80 researchers completed the training, which comprised:

- Information session (approx. 1hr) – covering what Explorathon is, time scales, previous examples of participation.
- Ideas Generation (half day) – Why get involved, who is your audience, venue profile by audience, success stories, prop-free engagement. This is followed by time to develop ideas and get feedback so participants leave with a plan for their proposal.
- Event management (1 hour) – planning, project and time management.
- Evaluation (2 hours) – how to build evaluation into the engagement.
- Quality control- all applicants are interviewed and this 30min – 1 hour, face-to-face session is designed to see if the proposal is of a suitable standard and will have a suitable audience.

The Programme Lead for Explorathon at Strathclyde considered that the MUSE work was one of the strengths offered in the bid renewal and that there had been an opportunity to share this best practice with other University Leads in the consortium. With positive examples on which to draw, and advocates from the MUSE schools, other schools were able to commit more readily to taking part in Explorathon activities. They could also have confidence that relevant PVG checks and risk assessments had been completed. Without MUSE experience, it is considered unlikely that schools could have been involved to the same extent.

## **Good working relationships**

A good working relationship with the school was seen as vital to the success of the programme. Teachers are taking a leap of faith by permitting universities to run projects in schools or by encouraging pupils to take part in university activities outside of school. Trust from teaching staff that the academic staff knew what they

were doing and that the pupils' time wasn't being wasted was therefore important. Being able to demonstrate a plan of activities and the ability to adjust these plans at short notice (often right as sessions were starting) were reported by academic staff and PhD students as being helpful not only in terms of making the projects work for the pupils, but also in terms of building trust between the projects and the schools. Being able to manage the classroom environment and ensure there is discipline for pupils was also helpful for academic staff and students in building trust with the teachers and relationships with the schools.

### **Involvement of teachers- pros and cons**

Academic staff reported that having liaison teachers to support the activities was a useful factor in the projects' success. In the case of the Neuroscience project, the contact teacher already understood the concepts being explored, knew how to design scientific posters and was able to participate. Similarly, the contact teacher involved in the Fablab project for the first two years was knowledgeable and engaged about the robot-building activity and got involved in the work. Where teachers were less engaged, projects were more vulnerable.

Conversely, however, for some researchers, the lack of teacher presence, while restrictive in terms of having a clear link to understanding impact on teaching and learning outside of the sessions, also had beneficial impact. The absence of a teacher helped create less formal relationships between the researchers and the pupils. This more informal and relaxed nature of their relationships was viewed as critical to the success of the project and the positive impact it had on pupils.

### **Pupil Cohorts**

Choosing the 'right' cohort to be involved in a project was viewed as important by some of the projects. Pupils need to be able to engage in the work and it needs to be pitched at the right level. Although an original aim was to be as inclusive as possible, it was the case that sometimes those thought to gain the most benefit by the schools were already high academic achievers. We took the pragmatic approach that this was acceptable in the first instance, and aimed to increase participation thereafter. For example, in Case Study 1, the researcher made a request that the school include 'middle achievers' in its second year cohort. Similarly, in Case Study 3, the first cohort was entirely comprised of male students; a female researcher went into the school to help recruit females for the subsequent years.

### **The need for flexibility**

From the outset, we were aware of the requirement to link to the curriculum. Our initial ambition, to create a new curriculum-led VIP called GILT-PC, imposed a structure which essentially limited what we could do; the decision was very quickly made to open MUSE up to any project which was attractive to both schools and University colleagues. We have found that offering a range of different models, activities and mechanisms, is an efficient and effective means by which schools- and researchers- can find a level of commitment which best fits their requirements.

### **Planning and checking**

While flexibility is vital, a number of projects highlighted the importance of planning and checking. A common difficulty faced by many of the projects was a change of plan at the school, such as a teacher being unwell, or

at exam time when pupils may not attend sessions, was not communicated to the University. We therefore learned the benefits of double-checking all arrangements.

### **Timetable awareness**

It was found that the University and schools often had conflicting timetables and as a result finding a period of time that suited both parties to work on a project was frequently difficult. Some academic staff and PhD students reported that they did not always have a good level of knowledge or awareness of school scheduling and timetabling, such as school holiday dates or periods when certain year groups would be unavailable due to preparation for exams and the exams themselves. In response, the Coordinator committed a significant amount of work to compile a central resource for term dates and other dates for the unavailability of schools (rather than the availability, *per se*).

### **Mentoring**

One particularly interesting learning point was the mentoring project. We found that the first pilot, which was specifically designed to help pupils 'get better grades' and promoted as such, had very mixed feedback from the mentors and the pupils, to the extent that we did not run it again. However, the vast majority of the projects cited the benefits derived from the pupils interacting with University colleagues, in terms of raising aspiration and demystifying the University experience- which was exactly the intended outcome of the mentoring project. We hypothesise that in making the focus of the relationship about research – as opposed to explicitly stating the purpose to raise academic achievement – meant that pupils were able to engage more readily without feeling under scrutiny to perform in a certain way.

### **Maintaining pupil interest**

Linked to the mentoring learning point above, we learned that pupils were more engaged when the projects had relevance for them. For example, some projects e.g. in the Oral History (Case study 1), the research focus on the local area contributed to pupil enthusiasm. In the Fablab project (Case study 3), feedback indicates that enabling pupils to apply school subjects to the real world was key.

### **What works: the ongoing model**

**Platforms:** Coming out of the funded period, we have focussed on a number of centrally managed 'platform' opportunities, which are replicable and sustainable. The target demographics of these are much broader than MUSE, covering all ages from primary school children to older adults; these are outlined in Section 9. Efficiency is the main driver here. Through the platform initiatives, exemplified by Explorathon, we can mobilise effort of a number of central staff, covering promotion, facilitation and help with organisation of interactions and events, while the University provides funding through its Major Events Strategic Fund. A distributed management model, whereby different project managers lead each initiative, ensures a manageable and largely predictable workload for individuals while widening the pool of expertise in the University. These platforms allow us to reach a large number of people with as much support provided for academic staff as possible. Moreover, the platforms are replicable year after year, meaning that sustained- and often prohibitively time-consuming- contact is unnecessary.

**Mentoring:** Throughout MUSE, the benefits of exposing pupils to University researchers was clear in terms of raising aspiration. We knew there was demand for a mentoring model, but had mixed initial results, finding

better success when the emphasis on improving academic achievement was removed. These models required huge input, however, in terms of training and matching researchers with schools, as well as requiring the necessary funding for PVG checks and associated administration. As we move out of the funded period, we are working in closer partnership with Widening Access colleagues (the MUSE schools did not map onto their target demographics, which limited collaboration during the MUSE project) to develop more sustainable mentoring pathways:

- Following a highly successful pilot in 2016, we have now agreed a partnership with The Brilliant Club, an award-winning charity that exists to increase the number of pupils from under-represented backgrounds progressing to highly selective universities. They do this by placing PhD students to deliver University- style teaching methods to deliver academically rigorous programmes to small groups of high potential pupils.

In 2016-17, the Brilliant Club worked with over 10,000 pupils in over 400 schools, with the support of 30 partner universities. Of the pupils eligible for Free School Meals (a marker of disadvantage) who participated in the programme in 2015, 58% progressed to a highly selective university. This is compared to an 11% average for that cohort nationally. Strathclyde was the first Scottish institution to work with the Brilliant Club.

- We have also entered into a partnership with MCR Pathways, which provides a mentoring model for children in care, with the Executive Dean of Strathclyde Business School have committing to encouraging 40% of his staff to participate in the programme. Strathclyde is particularly proud to have the largest intake of disadvantaged students amongst research intensive institutions; indeed, one in every ten full-time, Scottish entrants from a disadvantaged background who is studying at university, does so at Strathclyde. The growing focus towards disadvantaged communities is consistent with the recently articulated university vision to be a socially progressive institution.

#### c) Please list all engagement activities that were developed and run during your SUPI project

##### 1. **Fablab (Case Study 3)**

This project started with '**Robotic Vehicles for Education and Research**' (**RoVER**) VIP (Vertically Integrated Project) and became known as 'Fablab'. The project ran for 3 years in 10 week blocks in cohorts of 16-20 pupils, as an after school workshop and utilised the engineering technology in the Fablab on the University campus. The project involved pupils attending the Fablab in which they engaged in several engineering/development projects. The Fablab is a digital manufacturing laboratory which is open to the University community, equipped with the latest in digital manufacturing equipment, from vinyl cutters to laser cutters; from 3D printers to 3D software the lab offers extensive facilities to manufacture almost anything. In addition to the hardware, Fablab comprises a growing team of enthusiastic colleagues who are willing to take students, staff and the general public through the safe and effective use of this equipment. The Fablab Engineering project took place on the University campus each week.

##### 2. **Mentoring**

In Year 1 of MUSE we ran a mentoring project involving 22 PhD researchers, ECRs, education students and STEM Ambassadors. This was in response to a request from the school. It was particularly cost-prohibitive since the PVG checks on the mentors were £76 each. They were each given a small group of up to five pupils to work with to raise aspiration and keep them on track with their studies. Unfortunately, there were very mixed results with the project, mainly due to pupils having been chosen to participate rather than volunteer. Feedback from the mentors was that the group were disengaged with the project and did not participate as well as expected. There were some very positive outcomes however with a few pupils commenting that they found it very helpful. The logistics of co-ordinating meetings with pupils was also problematic and it was decided not to run the mentoring project again in year 2.

### **3. History of Health and Medicine: Schools Project**

This 6-week project drew on research expertise of academics working across the School of Humanities: History, English and Modern Languages. It aimed to impact upon the teaching of Social Subjects in Secondary Schools by introducing History of Medicine Materials. Students learned about the impact of disease and medicine on modern societies and understand how different societies have responded to modern epidemics. By exploring a range of sources, including films, photographs, letters, diaries, medical reports and oral histories students developed a range of research skills and techniques including: formulating a research question; applying knowledge and relating to local and global case studies; evaluating and analysing a variety of sources; identify biases in sources and understand the consequences of an event. Initially the project worked with one school on a case study looking at wounded soldiers in the World Wars.

### **4. MOBILELAND**

MOBILELAND was a Glasgow City Council (GCC) & Strathclyde project via the VIP initiative. MOBILELAND <https://mobilelandglasgow.wordpress.com/> is a radical landscape recovery action that reactivates abandoned sites through temporary uses of vacant plots and community led place making. In working with schools the project aimed to develop an appreciation of stories as educational resources, especially as sources of teaching themes that support Education for Sustainable Developments. In addition, it aimed to develop skills in locating and telling stories as part of a teaching programme and to develop strategies for integrating storytelling approaches into teaching units to achieve the objectives of Education for Sustainable Development.

A small group of colleagues involved in the MOBILELAND VIP worked closely with a Community Involvement class in the school. The first discussions with the class introduced MOBILELAND and ideas to use a 'HerbPod' to transform an empty space. The class was keen to learn more and decided as part of the workshops that they would like to build a greenhouse for their HerbPods using recycled materials - in this case plastic bottles. Over a series of workshops with the school they planted HerbPods with the aims of showing the school pupils how small interventions can transform a space and educate them on the use of herbs for flavouring food instead of salt. The project involved 18 pupils and 8 undergraduate students.

### **5. 'The Unseen Seen' or 'Looking through the Lens' (Case study 2)**

This particular collaboration developed through open discussions with staff at Knightswood Secondary School and a member of staff at Strathclyde University, based on an ongoing research project first supported through Strathclyde's Bridging the Gap funding. The initial aim of the project was to form new partnerships with science, electrical engineering and the humanities using optical imaging and hyperspectral imaging to interpret and reinterpret the work of the visual artist, the late Steven Campbell. Engaging with interdisciplinary activities has been at the heart of this MUSE project involving staff (university and school) and young people (2<sup>nd</sup> year and 3<sup>rd</sup> year pupils) from the disciplines of Science, Drama, Art & Design, Music, Dance, Creative Writing, Photography and Film. Since the project began pupils and staff have worked on two interdisciplinary projects from within the school environment and with staff from Strathclyde's School of Humanities and Research Staff from Electronic and Electrical Engineering. A third and final project is underway with 4th year pupils, again an interdisciplinary project, involving specialist school staff from Music (some university input), Art & Design, Dance, Science, Drama (university input) and Creative Writing. 38 pupils engaged with the project over the period.

## **6. Oral histories (Case Study 1)**

Twelve S4 (Year 11) pupils took part in an oral history project based on the changing industrial, economic and social landscape of Springburn. The project ran initially for 24 weeks and took the form of weekly workshop sessions delivered by a PhD student based in the Scottish Oral History Centre and an undergraduate History student. The undergraduate student gained a placement in the school as part of their History course and is considering teaching as a future career choice. The project then ran for three years each with a different focus, increasing in size annually (year one 12; year two 17; year three 23). Pupils conducted original research, incorporating oral history interviews and archive materials. The second year of the project built upon the experiences of the first. Publicity about the project brought a contact with a local interest/pressure group formed in Springburn to try and campaign for the restoration of the Springburn Winter Gardens - a significant architectural/social site which has been in decline since the 1980s.

## **7. 'Who am I?' Autobiographies Project**

A small group of pupils worked with a student-teacher to develop autobiographies of their lives expressed through a variety of means including written (poetry, narrative), visual (painting, drawing, photography) or performance (music, dance, drama). The final form of the students' project was negotiated with teachers. The project depended on teachers covering some of the fundamental skills of producing an autobiography during class. Teachers then acted in an advisory capacity to the student-teachers. The project culminated in a mini-conference in which pupils from all schools/classes presented and 'published' their autobiographies. University academics worked in partnership with student-teachers and teachers to oversee the project. They provided a conceptual framework underpinned by theories of student voice and agency.

## **8. ActivChat Project**

The ActivChat Project was a VIP model in which two undergraduate university students and one PhD student worked together with 15 secondary school pupils in S3 to deliver a ten-week programme within the school. The sessions centred around physical activity, sedentary behaviour, and

motivations and attitudes towards being physically active and sedentary, based on concepts within the self-determination theory. Measurement of physical activity and sedentary behaviour, analysis, group work, and group presentations were a key part of the programme. Important aims for the intervention were to make the pupils more conscious regarding their own levels of physical activity and sedentary behaviour, introduce them to the research process, in addition to increase their intrinsic motivations for being physically active and/or to avoid excessive sedentary behaviour. The learning outcomes of each session were linked to the Curriculum for Excellence (CfE) to ensure there an educational purpose to the programme. Development of literacy, numeracy and IT skills was also incorporated within the sessions. Key aims for the university students/researchers delivering the intervention included gaining experience planning and implementing a project, in addition to working together with secondary school pupils. It also allowed secondary school pupils the opportunity to gain insight into what research is and how it can link to everyday life and also understanding what being a university student involves.

## **9. Asteroids**

This was a one day course for teachers and N5 students of Physics from nine schools from four different Education Authority areas in Scotland. This course included talks, practical activities and a tour of the University Engineering department. The course aimed to provide learning activities for students and CPD for teachers, covering the same or a complementary cutting edge topic and to enable follow up activities back in school by providing practical resources to support greater impact on teaching and learning. It also aimed to explore and then implement ways of drawing together the complementary activities of researchers' engagement with students and researcher engagement with teachers. This led to a research project on Space Debris and Asteroids which was used at *Engage* week and *Explorathon*. This partnership also generated a £30,000 Royal Academy of Engineering grant for a touring 'Space for Art' exhibition- see 4B, below.

## **10. Neuroscience Project 'Substance misuse and the brain'**

This project aimed to explore how substance misuse affects the brain and how this leads to changes in mood and behaviour. It synergised with and enhanced the Health and Wellbeing curriculum area of the Curriculum for Excellence. It was partially funded by Carnegie (£7K for primary school involvement). In the first year of this project, a multidisciplinary team of Strathclyde researchers led by Professor Judith Pratt established a link with a secondary school and its associated feeder school. This vertically integrated approach supported pupil transition between primary and secondary school and enabled the secondary pupils to become mentors for the primary pupils. In discussion with teachers the specific drugs for the project were established based upon their impact on society and legal status; alcohol, tobacco and cannabis. Senior pupils (S3) were selected based upon the criterion of who would benefit most from being introduced to the value of research as a knowledge building tool. The team of an early career researcher and established academics led on an interactive workshop with the primary (P7) and S3 pupils to discuss how drugs affect brain function, mood and behaviour. Pupils were also introduced to the concept of how drugs may hijack the brain reward system potentially leading to addiction. Armed with this information, pupils were provided with research weblinks by Strathclyde researchers. Pupils worked in teams to further research a particular drug and produce a poster of their findings with guidance from Strathclyde researchers and teachers. Additionally, S3 pupils visited the Strathclyde Fabrication lab to produce digital models of the brain.

Pupils presented their findings to parents and the wider school community at Strathclyde campus events.

### **11. Blood Stain Pattern Analysis**

In this project teachers and pupils in S2 used online resources to support their research on blood stain patterns. The project supported the Forensic Science module delivered in school by providing resources and academic support to deliver a workshop on 'blood spatter'. Pupils learned more about academic research in the field of forensic science. The researchers provided links to online resources on blood stain pattern analysis together with lecture notes for this topic. PhD students prepared blood stained clothing samples for analysis and visited the school to explain the worksheets and blood stain patterns to the class teacher who delivered the workshop to 4 classes of 20 pupils over 6 months. Pupils analysed the blood stain patterns in pairs and completed the exam sheets to record their findings. The lead researcher gave a presentation to the whole year group of pupils on her career in Forensic Science research. In addition, PhD students from STEM research areas visited the school to speak to pupils about their career paths and what it is like to study a STEM subject at University. The aim was to support pupil option choices and encourage the study of STEM subjects. The school provided information on their Careers Evening which involved stalls and presentations to pupils and parents. The MUSE project co-ordination team made arrangements for Strathclyde University PhD students to attend.

### **12. Insight into Chemistry**

A recent inspection at the school had suggested that pupils perceived Chemistry to be too difficult and the numbers choosing to study Chemistry at Higher level was going down. We agreed to host an event that would enable pupils to meet researchers and students from different Chemistry related disciplines within Strathclyde University, i.e. Pure and Applied Chemistry, Chemical Engineering and Forensic Science. 39 pupils and 3 teachers attended the day long event on the University campus. The opening session was a presentation from three postgraduate research students on their research and on their University experience. Pupils then went to a Chemical Engineering laboratory to take part in Nanodirt and Nanojelly workshops; and a Forensic Science laboratory to take part in fingerprint analysis, blood stain analysis and shoe print analysis. This gave the pupils the opportunity to see different laboratory environments and tour different areas of the University campus. The event included lunch and informal networking. 75% of pupils said that they would now be more likely to consider studying Chemistry at university than before the event.

### **13. Explorathon**

As part of a Scotland-wide consortium, we secured a second round of Horizon 2020 funding to host European Researchers Night in 2016 and 2017. In Scotland, European Researchers Night is known as "Explorathon" and has events in Glasgow, Edinburgh, Aberdeen and St. Andrews. Explorathon'16 took place on 30<sup>th</sup> September and 1<sup>st</sup> October 2016 with Glasgow-based researchers hosting events in 46 schools and 13 public venues. The decision to expand Explorathon events to schools was based on the experience of MUSE and how best to engage with schools. The events in 2016 enabled the exceeded the target of meeting 4,000 members of the public on a 1:1 basis, with over 400 researchers meeting almost 5,000 school children and members of the public in 24 hours (from <https://www.strath.ac.uk/workwithus/publicengagement/explorathon/>). Explorathon was

initially funded in 2014 (European Horizon 2020 Marie Curie project) and involves a consortium of Scottish universities led by Aberdeen. The Glasgow dimension to the work involves Strathclyde and Glasgow universities and due to the population surrounding Glasgow forms a substantive aspect of the overall Explorathon work in Scotland. The MUSE involvement in Explorathon was a central component of the 2016 event, with over 25% of the overall Explorathon activity which took place in Glasgow focussing on engaging children within their classes, and where appropriate, coming to the University to take part in activities. 95% of teachers who took part said they would do so again.

#### **14. Young Chemical Ambassador Programme**

Funded by the Royal Society of Chemistry and MUSE, and as a direct result of Explorathon, The Young Chemical Ambassador Programme (YCA) paired 8 PhD student mentors from the Department of Chemical and Process Engineering with pupils at 8 local Glasgow City Council secondary schools, from a range of SIMD postcodes. The schools involved in the programme were Drumchapel High, Eastbank Academy, Hillpark Secondary, Holyrood Secondary, John Paul Academy, Notre Dame High, and St. Andrew's RC Secondary and St. Paul's High. The aim of the programme was to train 16 pupils (2 from each school – 1 male and 1 female) to become chemical ambassadors. The 'ambassadors' attended a 5 day masterclass at the University of Strathclyde in November-December 2016 where they found out about the University, chemical engineering and had the opportunity to participate in a number of hands-on activities. The masterclass also included a site visit to a local engineering company, Doosan Babcock. Ambassadors then designed and developed their own hands-on, interactive activity and presentation based around their mentor's research area, which they will deliver back at school to their classmates in spring 2017. Pupils will be judged on the delivery of their presentation and activity, and prizes will be awarded at a celebration event in April 2017.

### **3: THE IMPACT AND INFLUENCE OF YOUR SUPI PROJECT**

#### **a) Please summarise the impact(s) of your SUPI project across its lifetime**

A number of projects showed significant benefits to pupils both in terms of their academic progress and the wider benefits of increasing their knowledge and experience of University. Where teacher engagement was significant there was also evidence that close working relationships with the University brought benefits to teachers. Primarily, this involved supporting their professional development in subject knowledge but also at times in project management. Schools also benefited from a number of public engagement opportunities that projects brought, which highlighted the work of the school at local and national platforms. The key impacts are explained in more detail below.

#### **Increasing aspiration**

MUSE had an implicit role in supporting widening participation. One aspect of this was due to its involvement with some schools that, while predominantly middle class in their composition, also included significant numbers of young people from more disadvantaged areas of the City – these pupils can fall through the cracks in initiatives which target only schools with a particular demographic.

Many of the academics involved highlighted that one of the key purposes of the project was to give pupils

direct contact with University- based researchers, as a means of providing insight into university and bringing any preconceived ideas pupils may have had closer to reality. For researchers delivering the projects, this continued to be a prominent theme. Pupils' involvement with researchers was seen to raise awareness as to what universities are like and what actually happens there. For pupils whose projects took place on the University campus, going to a university became a normal and less daunting event, particularly for pupils who had no previous involvement with people who went to university.

The hope in enabling pupils to see researchers as accessible and personable and 'just like them' was that they would see that they too may have a place in a university if they wished. In addition, their ongoing involvement with projects allowed pupils to build confidence in their abilities.

Pupils were also keen to ask undergraduate and postgraduate students about their experiences of university. Teachers and academic and research staff felt this increased pupil aspiration to consider progressing into higher education, within the subjects involved in the projects and more generally. Pupils asked questions about how to apply, what the curriculum is like at university and how to do well in student academic work. In this sense one academic reported that they were serving as an "info point for the uni" in a way that pupils found accessible and were keen to engage with.

Pupils also made reference to the benefits of engaging with MUSE projects, often referring to how it enabled them to get both insight into University life and the content and application of particular courses. During interviews, a number of participants commented on the increase in aspiration:

'The project has definitely raised aspirations. A lot of our young people had never thought about the possibility of university and this has given them a real opportunity to see what university level research is like'. (teacher)

'There were definitely cases where some pupils' enthusiasm and aspiration had increased over the course of the programme. This was noticed based on the follow up questions pupils would ask us.' (researcher)

Formal impact measurement for these projects is difficult and sometimes inappropriate; for example, it was suggested that it may be alienating and unhelpful to circulate a questionnaire to pupils asking refugee and asylum-seeking children who are only just beginning to learn English about what they got from the project they took part in. It is not possible to assess accurately the impact of the projects on academic attainment, nor to control for the independent impact of MUSE or 'MUSE effect' at this point. The MUSE relationships tended to work better in an informal, conversational environment and these reports from teachers indicate that the pupils did learn about research and assessing the quality of information sources.

### **Impact on pupils' academic abilities**

Teachers and academic staff reported that the projects supported academic development and made pupils more enthusiastic about the subjects they were studying. It gave them an increased knowledge and understanding of the topic being explored through the projects, for example a particular concept in the arts, different forms of literacy (scientific, information, statistical), physical activity and wellbeing etc., as well as developing an understanding of research skills and an insight into university life. The Substance Misuse and the Brain project, for example, demonstrated the importance of critical thinking, asking key questions such

as “how do you know that the information you are reading is accurate?” and encouraging pupils to ask “says who?” of the claims they hear. Pupils also learned about referencing and following up citations, skills which will be useful for future academic work.

Some frequent feedback was the observation that the projects helped pupils to re-connect with the broader relevance of their school subjects and see the longer term relevance of their schooling, allowing pupils to connect their present learning in school with their future study and careers. Similarly, a researcher who worked with pupils also noted that the project they worked on required pupils to draw on skills and knowledge from several of their school subjects to make a real product, allowing pupils to see the practical relevance of their school work and developing a multidisciplinary approach.

One of the unique aspects of MUSE was that pupils were often actively involved in real research projects. This was viewed as preferable to the passive introductions to research they may have experienced in the past because it provided deeper insight and enabled them to develop their own research skills.

It was also hoped that pupils' involvement in MUSE projects might nurture their enthusiasm for learning and provide them with standards they could aim towards. While it is difficult to state with certainty the direct impact on pupils' academic achievements, feedback from teachers was extremely positive and indicates that there was an improvement. In particular, teachers at one school reported an increase in attainment at National Level 4 to 5 for 3 pupils, which they attribute to MUSE participation. One teacher also considered MUSE involvement to be an asset for pupils' differentiating themselves in the competitive process of university applications:

‘An issue for young people applying to university is that the majority of the focus is on obtaining the grades to get there. Often this is not enough in securing a place on a popular course. Young people have to demonstrate that they are committed to pursuing further education in this field. MUSE has tailored this course for pupils to give them a taste of university life through developing a range of skills, all of which will be relevant when applying to university. (teacher)

### **Non-academic impact**

In terms of non-academic impact, perhaps the most striking was the consistent feedback from teachers and academic staff regarding increased confidence in the pupils. There was evidence across the MUSE projects that while pupils may have initially been reserved and perhaps a little overwhelmed by engaging with the University they soon adapted and recognized the potential for their own studies. In particular, the refugee and asylum-seeking pupils in the Autobiographies Project were new to Scotland, the English language and their school environments. Teachers and academic staff reported that the project enabled them to share their experiences and cultures with the school community, helping them to gain confidence and a sense of belonging.

### **Impacts on teachers**

Impacts on individual teachers varied according to the nature of the project they were involved with and their potential in terms of workload to engage fully with it. Some projects were continued outside the allocated project time by teachers who used the work being done as part of their own teaching. For some teachers, exposure to the projects opened up potential for both subject based learning and other forms of professional

development. One school reported a significant career benefit on the teacher involved, in terms of skills and profile:

During this project the school coordinator has learned to negotiate, co-teach, organise, support and lead staff from across disciplines and work alongside senior management from within his school environment. Working closely with the principal research investigator from Strathclyde has introduced him to new methods of research and teaching approaches which he has been applying to his teaching and with the opportunity to contribute to conferences he has developed a network of contacts beneficial to his professional development and widened the school's reputation nationally. Being one of the key personnel in this project he has been active in promoting the interdisciplinary nature of MUSE highlighting and showcasing the project as a concrete example of employing the values of a Curriculum for Excellence. Future progress may include co-authorship of a journal article with a member of the university staff. (extract from project evaluation report co-authored by teachers and lead researcher).

Teachers also reported that they get to know their pupils better and understand their experiences and backgrounds in ways that would not necessarily be possible in their everyday classroom teaching. The opportunity to learn from children from different backgrounds was reported as being informative and beneficial. Furthermore, one teacher commented that they felt better prepared to support pupils who were aiming for university.

### **Curriculum for Excellence**

Curriculum for Excellence requires schools to deliver learning across subjects. The interdisciplinarity of projects was therefore beneficial in helping schools achieve this. For example, the Substance Misuse and the Brain project utilised Science and Graphic Design, focusing on a science-based topic and creating a poster in PowerPoint. There was also scope for this to encompass aspects of Personal Social Health Education (PSHE). Another project combined English and Art, and the Autobiographies Project encouraged pupils to produce an artefact about their own lives in whatever form they found appropriate - through writing, art, music, or cookery, for example. The interdisciplinary nature of these projects also manifested at the University level - different departments worked in partnership on some projects, for example the English and Electrical Engineering collaboration in Knightswood school.

b) Please summarise any influence your SUP1 project has had on your institution, its culture, or that of any other institutions, cultures and projects/initiatives.

The MUSE projects chimed with the overall University mission of being socially progressive, enhancing the University's reputation within local communities and encouraging pupils to consider coming to the University to study.

On a strategic level, it has really raised the profile of public engagement within the University, and added to and complemented other initiatives, with MUSE projects taking part in *Engage!* Week and University Research Day, as well as being a key component for Explorathon. It offered a number of positive opportunities for academic & research staff ranging from developing their communication skills to significant opportunities for public engagement. In addition, some projects provided opportunity for data collection and academic publications. These opportunities also extended to University students who particularly benefited from opportunities to present their own research to school and wider public audiences.

In terms of direct culture change, the Fablab now actively offers schools the chance to make use of its facilities for a day or half day visit, through negotiation with the Fablab staff; this was not on the agenda before MUSE.

Below, we summarise the key benefits and impacts on Strathclyde, its academic staff and students

### **Supporting widening participation**

Some academic staff described themselves as being driven by a sense of social responsibility and reported that the University students who got involved also wanted to make a useful contribution to the different schools and their local communities. This position was amplified by the fact that the majority of schools engaged in the MUSE projects had low progression rates to higher education or were identified as having significant numbers of their pupils living in socially/economically disadvantaged areas.

For academic staff and researchers this led to the perception that MUSE had a significant overlap with the objectives of widening participation. This was something that staff were aware of and to some extent took responsibility for addressing. In some cases, they themselves had come from disadvantaged communities and wanted to “give something back”. One academic reported that the opportunity to work with school pupils meant they were able to break the stereotype of what a scientist looks like. The opportunity to tell individual stories about getting into and succeeding in university and academia enabled academic staff and students from first-in-family and non-traditional backgrounds to relate to pupils in schools with low higher education progression rates. Identifying this, some project staff were conscious of their role in raising pupil aspirations and giving them a sense that they could achieve at university.

### **Professional development**

Involvement in the MUSE projects was identified as a valuable source of professional development for University academic and research staff. MUSE engagement has been recognized as being valid activity within the citizenship strand of the University staff ‘Accountability and Development Review’ (ADR, individual staff appraisal process) and for some has been recognized as a valid activity within their departmental workload model. Training in the form of an accredited module was developed within the Researcher Development Programme.

For some staff, engagement in MUSE had a direct impact on their academic work. Researchers in the Oral History Project, for example, built upon their local community presence and contacts to conduct interviews that later provided a rich source of data for their research.

### **Enhancing the student experience**

Strathclyde takes its founding principle to be ‘the place of useful learning’ as central to its ethos, and opportunities to engage with the world outside academia is viewed as a core part of the ‘Strathclyde experience’. MUSE presented an excellent pathway for students to present their work publically and to engage with schools and young people. The structured approach which MUSE presented removed the barriers for those students who were keen to take their first steps in public engagement but unsure how to start the process. For example, student teachers involved in the ‘Who I Am?’ Project had an important opportunity to experience working with pupils who were refugees and asylum-seekers in an informal learning context; this is likely to be important as they begin their careers in schools.

For other undergraduate and postgraduate students, involvement in the project gave them the opportunity to work in classrooms and University spaces with school pupils, gaining new experience of devising teaching and learning activities.

Most crucially, the MUSE project gave students an opportunity to practice communicating their research to people with a non-technical background and this, as underlined by the academic staff involved, helped students develop a deeper understanding of their research area.

### External impact

The Oral History project had a significant impact in generating the Friends of Springburn Winter Gardens Trust campaign. The campaign aims to restore the Springburn Winter Gardens, an A-listed, Victorian glasshouse that has lain abandoned since 1983.

The launch event was held in Springburn Academy due to the relationship that has been built between the campaign MUSE project, which incorporated a substantial oral history project of the Winter Gardens and the restoration campaign. At the event, which was attended by around 70 members of the public, local politicians, and featured live on STV Glasgow's 'Riverside Show', the pupils presented their work over the past nine months. They told the audience what they have learned about conducting research, doing an oral history project and the findings from their interviews. Audience members commented on the confidence of the pupils to articulate their findings and the level of work that evidently went into the presentation.

## 4: PUBLICATIONS AND PRODUCTS

a) Please list any publications that have resulted from your SUPJ project

Academic publications were not an explicit goal of MUSE, a number of rich and diverse outputs emerged throughout the course of the project.

### Academic publications

- 'Collaborating with schools : challenges and opportunities for oral historian's. / Clark, Andrew (2015) Oral History, Vol. 43, No. 1, p.107-115. [https://pure.strath.ac.uk/portal/files/55204406/Clark\\_OH\\_2015\\_Collaborating\\_with\\_schools\\_challenges\\_and\\_opportunities\\_for\\_oral\\_historians.pdf](https://pure.strath.ac.uk/portal/files/55204406/Clark_OH_2015_Collaborating_with_schools_challenges_and_opportunities_for_oral_historians.pdf)

### Conference papers/ workshops

- **Oral History Society's annual conference, Manchester (July 2014):** 'University and high school engagement in Oral History: A reflective analysis of the Scottish Oral History C and Springburn Academy 2013-2014 see programme: <http://www.ohs.org.uk/conferences/community-voices-oral-history-on-the-ground/>
- **National Co-ordinating Centre for Public Engagement (NCCPE) Conference, Bristol (Nov.2014)** - Joint workshop presentation disseminating and informing a group of delegates on the creative approaches and outcomes of the MUSE project.

### Pupil-generated outputs

- Pupils presented their work to an academically informed audience through the Scottish Oral History Club monthly seminar programme

- Several posters that have been used in public engagement events within the University and at public events (see p.47 MUSE Project Evaluation)
- **Engage Strathclyde – (2014)** A poster presentation given by two of the young people
- **SUPI Spotlight Edition – (2014)** A young person prepared a 200 words article published on the front page of SUPI
- TV appearance on 'The Riverside Show' featuring the work of the Oral History project which inspired the launch of the Friends of the Winter Garden Trust campaign.

b) Please list any products e.g. artistic, creative or educational material outputs that have resulted from your SUPI project.

### Artistic outputs

- **Strathclyde University Research Day (2014 and 2015)** – Performances presented entirely by all the young people where their research findings were staged through dance, music, video and oral commentary
- **The Dance School of Scotland's Annual Showcase (2015)** – The staff in the dance school were inspired by the outcome of the work on the Campbell project and using the idea of taking a work of art and responding to it became the basis for a series of contemporary choreographed pieces. A performance took place, over 5 nights and 2 matinees, in June 2015 at the Theatre Royal, Glasgow.
- **Performance at The Barony (2016)** in front of an audience of students on the post graduate teaching course. The performance was an example of Curriculum of Excellence and Interdisciplinary working. Those involved were the young people from the Dance School of Scotland based at Knightswood who created a dance in response to ideas of tribal images and sounds, the music young people followed the dance and composed music to complement the movement and young people in English, creative writing class, wrote poetry and short stories in response to the dance and music. The dance, music and a selection of poetry and short stories were presented to the post graduates at the end of which there was a Q & A with the young people
- **Space as Art (2016)** an engagement programme funded by the Royal Academy of Engineering which toured UK science centres during the summer, engaging with thousands of school pupils, families and members of the public. It then was featured at the Starmus International Festival in the Canary Islands where guests included Prof Stephen Hawking, Dr Brian May, Prof Neil de Grasse Tyson and Prof Brian Cox. It was also featured at the Stardust Conference at ESA Headquarters in The Netherlands. It was also included as part of Explorathon and visited primary schools.

### Educational Resources

- Curriculum for Excellence Website resources based on History of Medicine project: <http://ewds.strath.ac.uk/Default.aspx?alias=ewds.strath.ac.uk/historymedicine>
- A research skills guide for History pupils at the school (Case Study 1)
- Case study on SUPI public engagement website <https://www.publicengagement.ac.uk/case-studies/muse-oral-history-research-project>
- Fablab is now open to primary and secondary schools for ½ or full day sessions, based on the MUSE experience.

Please list any awards or recognition associated with your SUPI project

A particularly exciting development for the project came in the form of a motion in the Scottish Parliament.

As outlined in Case Study 2, the pupils presented their research at the official launch of the Springburn Winter Gardens Trust, with the project receiving commendation following a motion by Patricia Ferguson MSP. The motion read:

*That the Parliament congratulates the students of Springburn Academy on their oral history project, which looked at the history of Springburn and in particular the contribution to life in the area made by Springburn Park, including what it considers the park's iconic winter gardens; understands that they used rigorous methodology in assembling the material needed for the project, including interviewing people about their memories of the gardens in former times; commends the students on what it considers their excellent presentation at a recent meeting of the Winter Gardens Trust, and recognises the support and leadership offered by both Andy Clark of the University of Strathclyde's Scottish Oral History Centre and the school's staff.*

The motion was supported by Jackie Baillie, David Stewart, Claudia Beamish, Hanzala Malik, Jean Urquhart, David Torrance, Elaine Murray, Dennis Robertson, Richard Lyle, Mike MacKenzie, Anne McTaggart, Drew Smith, Kevin Stewart.

## 6: COLLABORATIONS AND PARTNERSHIP

Please provide details of any significant collaborations and partnerships that have resulted from your SUPI project

Partnership working has been a core component of MUSE and is the primary method by which schools' engagement activity will be sustained at Strathclyde. Perhaps most significant, therefore, is our collaboration with the Explorathon consortium, led by the University of Aberdeen and including the Universities of Glasgow, St. Andrews and Strathclyde, as well as the Beltane Network which supports PE at the 4 Edinburgh Universities. The MUSE involvement in Explorathon was a central component of the 2016 event, with over 25% of the overall Explorathon activity taking place in the City of Glasgow focussing on engaging children within their classes, and where appropriate, coming to the University to take part in activities. This allowed us to have a reach and significance which far exceeded our hopes and expectations for the project.

Looking forward, as mentioned, we are in the process of establishing a STEM Hub, a collaboration between the Glasgow colleges, universities, local authority and Allan Glen Foundation, with physical engagement space in City College comprising flexible learning spaces, outreach facilities, commercial services and business incubation. This will incorporate a regional STEM schools' hub to support the talent pipeline from primary school to employment or further education, and be the focal point for STEM curricular development and delivery across the city and, by extension, nationally. It will operate as a 'Knowledge Hub' for industry, research and practical study for young people in Glasgow schools to work with and gain experience of innovative, cutting edge practice already in existence across labs and businesses already operating in Glasgow.

## 7: FURTHER FUNDING

Please list all further funding that your SUPI project has leveraged across its lifetime

- H2020 Researchers' Night: €180,000 for Explorathon. In 2016, over 25% of the overall Explorathon activity taking place in the City of Glasgow is focused on engaging children within their classes and where appropriate, come to the University to take part in activities.
- Carnegie Trust: £7,000 to support P7 'feeder' school involvement in the Neuroscience project
- Public Engagement Group: £10,000 from the University to support new PE activity, which was a fertile source of identifying potential new MUSE partners and projects
- Royal Academy of Engineering: £30,000 'Space as Art' touring exhibition based on Asteroids project- see 4b above
- H2020 Marie Curie ITN Stardust: in kind, worked with MUSE to deliver CPD to teachers and pupils in 10 schools on Asteroids project
- Royal Society of Chemistry: £10,000 in match funding to support the Young Chemical Ambassadors initiative following Explorathon
- Researcher Development Team: in-kind, worked with the Schools Engagement Coordinator to deliver training on schools' engagement

## 8: SKILLS AND PEOPLE

a) Please list any skills related developments that have taken place as part of, or as a result of your SUPI project

### **Role Development**

- Our Schools Engagement Assistant, Megan McGurk, was recruited in March 2015 to assist the Schools Engagement Coordinator; Megan has since received a promoted permanent post to become the University's Public Engagement Assistant.
- The Schools Engagement Coordinator, June Cunningham, left the project in April 2016 but has taken a permanent role at Strathclyde as Careers Advisor
- PI, Professor Tim Bedford, is now Associate Principal for Research and Innovation and will continue to provide strategic support to PE as part of that role
- Co-I, Madeleine Rooney, remains in RKES as Strategic R&KE Development Manager and will extend her focus in further developing the wider PE strategy.

### **Training**

- We are particularly proud of the skills development produced for Explorathon, where we designed and delivered training for 80 researchers taking part in the project.
- As a result of MUSE, the PG Cert in Professional Researcher Development provides MUSE participants with credits towards their PhD. 12 students have claimed credit in this way (see 2a above).

## Career development

- As mentioned in section 1, MUSE was a catalyst in securing ADR (annual development review) recognition for staff involved in PE activity.
- As outlined in 3a above, some teachers also reported a significant increase in their skill set and professional profile.

b) Please list any secondments placements and internships to or from other organisations associated with your SUPI project

While MUSE did not directly support placements or internships, we were approached by Nuffield to help promote their placement scheme through our network, which saw 4 pupils take up placements in the Departments of Physics and Chemistry.

Projects last 4-6 weeks during the summer vacation and the students received funding from the Nuffield Foundation to cover all their travel expenses. The Wellcome Trust and Research Councils UK are major partners with the Nuffield Foundation in funding the placements, and are particularly keen to encourage students with no family history of Higher Education, or who have not had the opportunity to participate in an enrichment activity of this nature before, to apply.

## 9: OTHER

Please state here any other information associated with your SUPI project that you would like RCUK to know as part of final reporting.

The MUSE project has been a particularly fruitful learning experience for Strathclyde. We have been able to demonstrate that engagement with schools is a popular, rewarding and impactful activity for our Strathclyde colleagues, and, perhaps most significantly, that this activity has made a real difference in the lives of school children, most notably in terms of confidence and aspiration. This has had a significant impact on our PE strategy: Strathclyde has a very strong institutional commitment to social progression and considering how best to sustain MUSE activities has proved the catalyst to formalise this agenda. We aim to bring together PE, Widening Access and the new strategic theme of Society and Policy to support our commitment not only to being a socially progressive employer, but also an institution which delivers on its mission to 'research, teach and be of benefit to society – to reach outside the University to make the world better educated, prosperous, healthy, fair and secure'.

As mentioned, we are conscious of the time constraints placed on academic colleagues and while we are keen to retain a distributed model which allows colleagues to pursue ideas, the University has also developed a number of centrally managed 'platform' opportunities, to support a large number of light- touch interactions, in keeping with the learning from the Explorathon model.

**Engage with Strathclyde** is Strathclyde's flagship events programme which, since 2012, has taken place annually at the start of May. The events provide an opportunity to find out more about the University's world-leading research and technologies, as well as how to benefit from our research, consultancy, CPD and other knowledge exchange with industry, the public and third sectors. In 2017, we held 48 events and welcomed over 2,200 delegates from 600 different organisations. Events from 2016 and 2017 aimed at schools audiences (teachers, managers, education professionals, etc) are listed below, together with attendees:

## 2017

- **Autism, Transitions and Further or Higher Education** on the important and complex process of transition from school into further or higher education for a student with autism. (68 attendees).
- **Autism - Partnerships with Families** considered the role of the teacher and practitioner in building and maintaining partnerships, and the impact they can have on a child with autism. (44 attendees)
- **Trans Awareness in Education** with a specific focus for those working in the education sector, the event promoted increased knowledge and understanding of trans identities and experience. (73 attendees)
- **Addressing the Attainment Gap Through Active Play** some of Scotland's most significant challenges in health and wellbeing whilst raising attainment in Scottish primary school children. (33 attendees)

## 2016

- **Inclusion, Resilience and Well-being for Children and Young People** examined the inclusion and wellbeing of children and young people with keynote talks from Tony McDaid, Head of Education for Attainment and Achievement and Elizabeth King, Principal Psychologist, both from South Lanarkshire Council. (45 attendees)
- **Autism, Transitions and Further or Higher Education** on the important and complex process of transition from school into further or higher education for a student with autism. (67 attendees)
- **Supporting Pupils with Autism** showcased examples of good practice within Education, and highlight current relevant resources and the online autism toolbox. (57 attendees)

**Explorathon** is Scotland's edition of the Horizon2020 Marie Skłodowska-Curie actions programme, European Researchers' Night. Delivered as a nationwide consortium, we have hosted the night annually since 2014, taking place on the last Friday of September, in Glasgow, Edinburgh, Aberdeen and St. Andrews. In 2016 Glasgow-based researchers hosted events in 13 public venues including two city Museums, The Forge Shopping Centre, Tinderbox Coffee Shop as well as on campus at the universities of Strathclyde and Glasgow. New for 2016, was the Explorathon Glasgow Schools Programme, led by Strathclyde, in which 80 researchers from Strathclyde and Glasgow universities, took part in activities in over 40 schools, meeting more than 1890 pupils from schools across the city in a single day.

**Images of Research** is an annual competition and subsequent year-long exhibition which brings the research conducted at Strathclyde to an audience of thousands of people, as the exhibition moves around high profile public spaces including art galleries, museums and the Glasgow Science Centre. The exhibition is created through a University-wide competition in which researchers are challenged to portray their work and its impact in a single, eye-catching image and short story. Images are submitted under a variety of categories which change annually, and are reviewed by a panel of expert judges before being shortlisted. The public is then invited to vote for their favourite image. Over 300 research projects have been showcased since the inaugural competition in 2012 and visitor numbers each year are thousands. There are opportunities for the public to interact with the research topics through augmented reality videos and to vote for their favourite images through social media. The competition is currently sponsored by Jessops.

**The Children's University**, managed by Strathclyde in collaboration with Glasgow City Council, currently works with 17 primary and 5 secondary schools and has distributed around 3000 'Passports to Learning' since

its foundation in 2013. The pupils, from schools across the city, collect stamps on their Passports to Learning while taking part in a wide range of learning activities outside school hours, including sports, crafts and skills, gallery and museum visits and music. It currently has 112 Public Learning Destinations – venues outside school where children can obtain credit for taking part in learning activities – and the graduating pupils have a special graduation ceremony in the University’s Barony Hall.

**The Strathclyde Public Engagement Fund** provides a small (up to £300) award to colleagues wishing to undertake PE activity, which can be spent on materials or travel. This is managed by the central Research and Knowledge Exchange Services (RKES) Directorate and academic colleagues with particular experience in PE. The Fund has been active since 2014.

**Training** Strathclyde provides targeted PE training for both early career researchers and PhD Students. PhD student PE training is delivered through our ‘Becoming an Engaging Researcher’ programme; a highly interactive module which consists of a core, introductory workshop followed by the option to specialise in a number of public engagement workshops. The course aims to help participants understand the importance of public engagement in the research environment, discover new routes to engagement, and develop a number of techniques to engage the public. Credits from this course count towards the PG Cert in Professional Researcher Development, which is a core component of Strathclyde’s PhD award. For early career researchers and new academic staff, ‘Public Engagement at Strathclyde’ is a credit-bearing course towards the PG Cert/Dip or MSc in Knowledge Exchange in Higher Education.

**Central support** for the PE agenda is provided in the main through the central RKES Directorate where a PE team has developed through a truly bottom- up approach:

- **Dr Rachel Clark**, Project Coordinator, manages the Explorathon and Engage with Strathclyde initiatives
- **Megan McGurk**, PE Assistant, worked full-time on MUSE, continues to support schools engagement, and manages the Images of Research exhibition
- **Madeleine Rooney**, Strategic R&KE Manager, was co-I on the MUSE project and provides guidance in particular on PE activity on Pathways to Impact documents on research proposals
- **Dr Jo Pitt**, Research Policy Officer, provides guidance on developing, and recording impact from PER in the context of REF Impact Case Studies.

This informal team works closely with the PI, Associate Principal Tim Bedford, and is fully supported through direct line management by the RKES Deputy Director.

**Mentoring:** As mentioned, MUSE activities underlined the potential to make a huge difference to pupils’ aspirations and outcomes by engaging them with university students, who demystify the transition process and encourage pupils to pursue a university path. Strathclyde supports a number of initiatives based on this mentoring mechanism. Our in-house programme, ‘**Young Strathclyder**’ targets schools in the West of Scotland with historically low participation rates in higher education, and provides S5 and S6 pupils with a student mentor, access to a version of the student card and access to the library and other facilities. They receive tailored support to assist them in their final year of school, to gain work experience and to complete the application process for university. We work in partnership with ‘**The Brilliant Club**’, an award-winning charity which aims to increase the number of pupils from under-represented backgrounds progressing to

highly-selective universities, by mobilising the PhD community to share its academic expertise with state schools. Another partnership which enables the mentoring model is the **MCR Pathways**, which provides mentors for young people from care backgrounds; Associate Principal and Executive Dean Professor David Hillier has committed to mobilising 40% of staff- both research and professional services- to act as mentors, citing the benefits of the mentoring process not only on the mentees, but also on the leadership skills it develops in mentors: “A large part of leadership is mentoring abilities. If you can mentor someone then you can use those skills in your organisation.’

Although currently delayed, as outlined in 6 above, we are working to establish a **STEM Hub**, a collaboration between the Glasgow colleges, universities, local authority and Allan Glen Foundation, with physical engagement space in City College. Operating as a ‘Knowledge Hub’ for industry, research and practical study for young people in Glasgow schools we anticipate it will become a key mechanism to identify curriculum-led projects, and an ideal mechanism to spread the MUSE learning still further.

Looking forward, we have registered for the NCCPE Watermark to help solidify and put this strategy into action. The MUSE core team (Associate Principal, Professor Tim Bedford, Strategic R&KE Development Manager Madeleine Rooney and Public Engagement Assistant Megan McGurk) will retain their posts and commitment to supporting the strategy, together with colleagues from across the University- including a number of MUSE affiliated academics- who have already volunteered to take this forward.