

ScotPEN Wellcome Engagement Award

SWEA Final Report

This form, including relevant appendices, must be submitted electronically as a single PDF file, **no later than 26 Aug 2024**

Please send to: scotpen-wellcome-engagement-award@glasgow.ac.uk

Please note, this information will be shared with external evaluation consultants who have been commissioned by SWEA and Wellcome, and will be used for the purposes of evaluating this grants scheme. The data gathered is extremely valuable in understanding the value, outcomes and impacts of this scheme as a whole; what improvements need to be made; and will help to inform how Wellcome PE Enrichment grants are supported and awarded in the future.



1. Project Information

Project lead: Name and position	Dr. Megan MacLeod
Project title	Co-Immunicate: communicating immunity with the community
Start date	25/02/2020
End date	01/07/2024
Total funding awarded	£36,887.00

Project summary

Please refer to the summary originally provided in your application and modify it if appropriate. (Summary for external publication; maximum 250 words).

Our project has inspired and informed our local community. We interacted with pupils over a 4-year period at Anderston primary school to increase and sustain understanding of communication between immune cells and how this is required for vaccine-induced protection. With the school pupils and staff, we co-created activities to disseminate the pupils' learning and enthusiasm, and inspired a positive attitude to scientific research.

Through our multi-layered approach we developed interactive activities to help the school pupils understand different elements of the immune responses to respiratory viruses. This inspired the pupils to create their own activities which in years 3-4, we displayed at the Glasgow Science Festival.

We worked with the pupils and colleagues at the Glasgow School of Art School of Simulation and Visualisation to co-create an augmented reality educational App to help explain the immune system in a fun and engaging way.

Our outputs were collated and shared via a University of Glasgow hosted website to ensure wide dissemination of our activities and approaches.

2. Inputs

What resources were used in the development and delivery of the project?

For example: funding including any additional/partnership funding; in-kind support; key staff involved; partners – internal or external; training/support received.

Resources

We used the ScotPEN Award funding as planned, although costs were lower in large part because of the limitations due to the Covid-19 pandemic.

Multiple partners were involved in the delivery of the project.

Students and staff at the University of Glasgow were central to the planning and delivery of the project. This included the two project leads, Drs Megan MacLeod and Kerrie Hargrave, and undergraduate intern students. We had intern students in Years 1 and 3-4 as Year 2 activities were curtailed due to the Covid-19 pandemic. The interns were recruited through a competitive process and helped with delivery of the project at the school, monitoring engagement including collating pupil outputs, and in years 3 and 4, delivery of the co-created activity at the Glasgow Science Festival.

The teachers at Anderston Primary school, Ms Anna Cain and Mrs Rowan Patterson, were key to the project success. They provided input into overall project design, including alignment with the curriculum, and ensured positive interactions during the researchers' visits to the school.

The pupils across Primary 6-7 in each of the years were central to the project. Even during the Covid-19 pandemic, we found ways to meet online with the pupils to ensure their participation.

In Years 2-4, the teachers and some pupils from Anderston primary school joined the UoG staff/students to present an activity at the GSF.

Our partners at the Glasgow School of Art, Dr Matthieu Poyade and Ms Orla McCorry, were involved in each step of the design of the project App including interactions with the pupils during the design and testing stages, and the App generation.

Finally, we engaged Dr Debroah McNeill to formally review the project in the final year.

Training

Drs MacLeod and Hargrave received training in methods to measure engagement from Lisa Wilson in Year 1, which was organised via the UoG MVLS college engagement hub. This training helped shape subsequent training for the interns which was delivered by Dr Hargrave.

3. Outputs

- (i) **Audiences and partners.** What individuals/ public groups were involved? (e.g. young people; adults; families; schools; community groups; local residents; patient groups etc.). Please also include any demographic data collected (e.g. age; gender etc.).

As listed above, project partners included the primary 6/7 pupils at Anderston primary (10-11 years old). In Years 1 and 2, we worked with one class with approximately 20 pupils each year. In Years 2 and 4, we worked with two P6/7 classes, again each class had approximately 20 pupils.

The external audiences were at the Glasgow Science Festival (Years 2-4) and ranged from pre-school children, primary and secondary school age children, including school groups, to adults. We presented the project across two days in Years 2-4. We measured interactions by the number of project worksheets we gave out or the number of stickers we gave to participants: Year 2: 110, Year 3: 133, Year 4: 140.

We also developed activities for the Glasgow Science Festival online 'Science on your Sofa' shown in Year 1 and updated content added in Year 2 that was

used in subsequent years. It is difficult to measure the number of visitors to our content, but in Year 2 alone, there were 10,728 unique visitors to the GSF website.

- (ii) **Activities.** Please indicate the types and numbers of activities or events delivered and/ or resources produced (e.g. festival; exhibition; workshop; walking tour; video; publication; online resource).

School-based

Each year we visited Anderston primary school for 2-3 days to present activities for the pupils to learn about different aspects of the immune response to respiratory viruses. Each year we had a different theme, these included communication by immune cells and vaccination. In Year 2, our visit was virtual via Teams and we worked with the teacher to deliver a scaled down version of our activities.

Each year we had three activities for the pupils to do, these were group activities that encouraged the pupils to work together to be creative or solve problems, or, the very popular, outside games.

Other yearly resources included a worksheet to consolidate the pupils' learning and glossaries of scientific terms.

GSF – in person

We presented tabletop activities at the GSF in Years 2, 3 and 4. These were interactive activities that helped the participants understand an aspect of immunity to respiratory viruses. The aim had been for these activities to be designed by the Anderston primary school pupils. This proved challenging because of the restrictions of the Covid-19 pandemic but in Years 3-4, the activity presented was based on one designed by pupils. Participants could take away a worksheet with them that included games, quizzes and a How To so they could do the activity at home.

GSF – online

We contributed short films showing people how to do a fun activity to help children learn about immunity to respiratory virus, we included a worksheet that could be downloaded to help people do the activity at home.

Co-Immunicate App

With the pupils, and colleagues at the Glasgow School of Art, we designed an entertaining educational App to help children understand immune responses to viruses and the importance of vaccines. We held interactive Teams sessions with the pupils to get their thoughts on the App design and receive their feedback on the App design and function.

Development of the App lead to the lead designer writing a manuscript that was published in Medical Visualization and Applications of Technology:

McCorry O, Hargrave K, Finney GE, Patterson R, Cain A, Poyade M, MacLeod MKL. 2022. The Co-IMMUNicate App: An Engaging and Entertaining Education Resource on Immunity to Respiratory Viruses. Medical Visualization and Applications of Technology. https://doi.org/10.1007/978-3-031-06735-8_4

4. Evaluation

What evaluation method(s) did you use to gather evidence and indicators of outcomes and impacts?

Pupils:

Our evaluation methods developed across the 4 years. We used a few methods to evaluate pupil learning including asking the pupils to self-report their understanding and enjoyment of activities before and after the visit. In Years 3-4, the interns evaluated pupil interaction and enjoyment, e.g. by counting the number of pupils happy to answer or ask questions, and how long the different activities took them to complete.

Interns

From year 2-4, each intern was asked to complete a feedback form to let us know their opinions of their role.

Teachers and researchers:

Our most useful method to evaluate the involvement of the teachers and researchers was an end-of project external Evaluation.

GSF:

For our own in-person activity, we gave out stickers or worksheets to count the number of people who we interacted with.

5. Outcomes/Impact

What happened as a result of the project? How many people did you reach/engage? Please refer to the intended outcomes provided in your Application. Please highlight whether these outcomes occurred, and any other outcomes, as may be appropriate.

- (i) **Public.** Number reached/engaged; key outcomes.

Pupils

Year 1: 20

Year 2: 20

Year 3: 40

Year 4: 40

Based on the self-reported evaluation and comments from the teachers, the project increased pupil understanding of immune responses to viruses and their enthusiasm for science. Some notable examples: pupils were excited to offer their opinions in discussion periods and ask questions. Pupils that we met in subsequent years (i.e. P6 who progressed to P7) could remember content from previous years. Pupils competed to create new activities for the GSF.

Being involved in the project increased the pupils' confidence – the best example of this was from pupils who joined us to present at the GSF. These pupils often started unsure of how to talk to GSF participants and needed encouragement to take part. By the end of the session, the pupils were running the activity.

GSF – in-person

Year 2: 110

Year 3: 133

Year 4: 140

Difficult to assess outcomes beyond that the majority of individuals we interacted with engaged with the activity for around 5-10minutes and many agreed they enjoyed the activity.

GSF- online

It is difficult to measure the number of visitors to our content, but in Year 2 alone, there were 10,728 unique visitors to the GSF website.

Immunology Researchers at British Society for Immunology (BSI) meetings

We took a poster about the project to three BSI meetings to share our project. As the poster was displayed across the meetings, we did not have a method to count the number of people who read it.

(ii) Research/Researchers. Number reached/engaged; key outcomes.

Interns: total of 6, two in Years 1, 3, and 4, they worked with us across 3-4 months, inclusive of the school visits in early Spring and in Years 3 and 4 in late Spring at the GSF.

All reported that they enjoyed being part of the project and gaining experience of working with school pupils and improving their communication skills.

One intern went on to have a PE-based role at the Centre for Virus Research

UoG staff:

Kerrie Hargrave: benefited from increased confidence with decision-making abilities, developed new skills around the co-design, development, and delivery aspects of the project, and managing the intern team.

Megan MacLeod: benefited from challenge of needing to work differently and to be comfortable with not being able to control everything. Resulting in an increased confidence in her ability to respond and adapt as required and being more relaxed with doing some things last minute.

- (iii) **Other outcomes:** e.g. for partners, institution or unexpected.

We worked hard to make the App available on Apple App store and on Google Play. This was the most challenging part of the project. We were unable to meet the requirement for Google Play and the UoG have recently re-moved the App from Apple App store as they have made the decision to only support student-facing Apps.

Dr MacLeod was asked to speak at a UoG PE online event in Feb 21 and a ScotPen event in Aug 21 to discuss the project, especially how we had adapted to working during the pandemic.

6. Legacy

Did this project generate long-lasting resources or partnerships and/or lead to additional PE or research projects being developed?

We have collected information about the project including the activities we created and our methods of evaluation on a website to help disseminate our learning and enthusiasm for the project:

<https://www.gla.ac.uk/connect/publicengagement/projectsandevents/coimunicate/>

We have established a great working relationship with the teachers at Anderston primary school and aim to work with them again in future projects.

7. Additional Information

Please include any relevant information and/or links here relating to your project, which could be used to raise awareness of your project work to others.

For example: links to an online resource, a film, internal/ external communications, news coverage or social media posts about the project; quotes from project partners or public participants/ audiences.

Please send/share relevant high-quality images/ photographs of the project 'in action' and/or project team.

GSF: Science on your sofa:

https://www.gla.ac.uk/events/sciencefestival/gsf2024/sots/handsonline/headline_800893_en.html

Press content on project:

<https://www.thenational.scot/news/20191981.university-glasgow-worked-children-design-educational-app-viruses/>

<https://news.stv.tv/west-central/anderston-primary-school-pupils-unveil-app-at-science-festival-to-teach-children-about-viruses-like-covid>

<https://www.tes.com/magazine/news/primary/glasgow-pupils-help-create-app-about-covid>

<https://www.chroniclive.co.uk/news/world-news/primary-school-children-help-design-24168534>

A selection of photos from school visits and the GSF are included in the following folder:

https://gla-my.sharepoint.com/:f:/g/personal/megan_macleod_glasgow_ac_uk/Eu4e4ugNSCdKhWiTVv6DAgBIMoArA0BOfvHXn89LeQYAw?e=Gd5XLi

8. Please complete the project finance table below.

Expenditure	Awarded (GBP)	Spent	Balance
Lead Applicant Costs			
Staff		£4,066.94	-£4,066.94
Travel and subsistence	£3,880	£0	£3,880
Consumables		£8,306.06	-£8,306.06
Equipment		£101.40	-£101.40
Other	£11,758	£384.54	£11,373.46
Total	£15,638	£12,859	£2,779
Partner Costs GSA			
Staff			
Travel and subsistence			
Consumables			
Other	£12,299	£12,299	£0
Total	£12,299	£12,299	£0
Partner Costs APS			
Staff		£1029.20	-£1029.20
Travel and subsistence			
Consumables			
Other	£8,950	£2,138.11	£6,811.89
Total	£8,950	£3,167	£5,783
Grand Total	£36,887	£28,325	£8,562

