



I'm a Scientist, Decipher my Data: Flu!

Evaluation Report

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1. Executive summary

I'm a Scientist, Decipher My Data! is a project led by Gallomanor Communications and funded through a Wellcome Trust People award. It is an online schools public engagement project which aims to provide real scientific data for use by secondary school students and teachers. The first experiment – *Flu!* – has investigated a possible correlation between illness absenteeism at schools and different indicators of influenza:



- Royal College of General Practitioners (RCGP) influenza like illness (ILI) episode rate per 100,000 people for all ages and among children aged five to fourteen.
- The proportion of influenza positive samples measure with a new surveillance system called DataMart.

The project brought together the core team in Gallomanor with teacher, Declan Fleming and UCL Academic Clinical Fellow, Dr Rob Aldridge.

The project has run for two school years: 2011-2012 and 2012-2013. At the project **onset**, its objectives were the following:

- Create a project that's easy for teachers and students to get involved in.
- Deliver a real benefit to science in the form of an academic paper.
- Involve 100 schools and over 2000 students in the *Flu!* Project.
- Create 200 interactions between the science team and the schools.
- Have 75 schools reporting their results.

However, **at the end of the first season** the project had not met the objectives listed above. Thirty-four schools gained consent for the project and eighteen uploaded data to the project website. There was no influenza outbreak over the winter of 2011/12, so it was not possible to test the project's hypothesis. For a more detailed evaluation of this first year, please see our report at: deciphermydata.org.uk/wp-content/uploads/2012/09/Decipher-My-Data-Flu-2011-12-Evaluation.pdf

During the **second year**, the project was modified – made earlier, simpler and clearer – to improve teacher participation. The objectives were also more realistic:

- Create a project that's easy for teachers and students to get involved in.
- Deliver a real benefit to science in the form of an academic paper.
- Involve 50 schools and over 1500 students in the *Flu!* Project.
- Have 40 schools uploading data and 25 reporting their results.

The project wasn't successful in terms of the number of schools involved or the amount of interactions. The influenza outbreak during 2012/2013 coincided with the Christmas break in schools, which meant that there were no school absence data. However, Dr Rob was able to complete his analysis of the data

provided by **twenty-seven schools over the 2 school years** and he wrote an academic paper to be submitted to an academic paper (we'll aim for PLOS one, but if they reject it will be submitted elsewhere). Still, as it usually happens in real science, the results aren't completely conclusive and more research is needed in the area.

Considering all circumstances, *Decipher my Data: Flu!* has served us as a pilot for future *Decipher my Data* projects. We now are aware of its weaknesses and strengths, which we will put to good use.

2. Evaluation

2.1. Evaluation methodology

The evaluation comprised the following methods:

1. Monitoring of participation and web use
2. Pre-project teacher e-survey
3. Post-project teacher e-survey
4. Post-project teacher phone interviews
5. Interviews with project team members near the start of the flu season
6. Debrief discussions with project team after the flu season.

All of the above was done for the [evaluation of the first *Decipher my Data* season in 2011/2012](#), however, the evaluation method for the second year was much simpler, consisting only in web stats, a post-project phone interview with one teacher and post-project interviews with the project team.

Nature of involvement	Number of schools 2011-2012	Total number of schools 2011-2012 & 2012-2013
Expressed an interest	352	352
Registered for the project	83	120
Secured consent	32	47
Uploaded data	18	27

2.2. Project metrics/Web stats

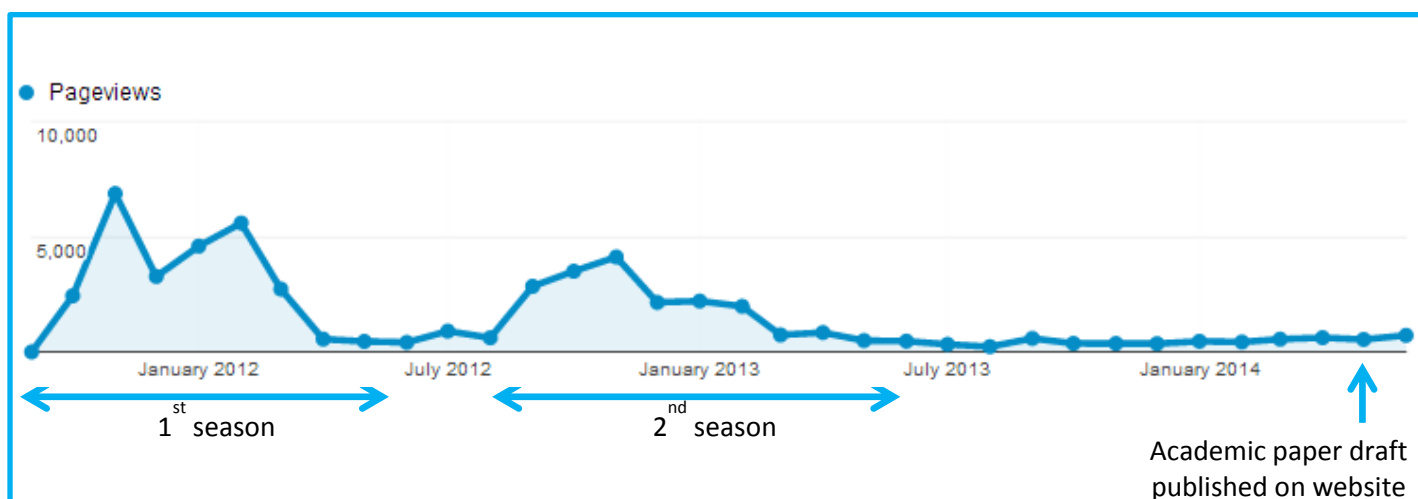
In the first year over 350 teachers expressed an interest in the project, following an email to them introducing the project in the summer term of 2011. Of these, 83 registered for the project in the autumn term of 2011, and 30 teachers completed the consent process.

To try to boost numbers for the second season we emailed the Heads of Science at secondary schools in the UK via a 3rd party list. We also used *Google Adwords* to promote the project which resulted in 800 clickthroughs. The subsequent lack of additional signups suggests that using paid-for advertising was not effective.

A total of 47 schools provided consent to take part over the two school years, and 27 of them uploaded data to the website. We estimate that each school has around 1,500 students. Therefore, getting data from 27 schools means we have collected data from over 40,000 students.

The site launched on 19th October 2011, if we look at the site visits since then (see next page), we can clearly identify the two peaks corresponding to the two events, which ran in 2011-2012 and 2012-2013 school years.

From the total visits since the site was launched until a month after the paper was sent to teachers, 34% were from returning visitors. Interestingly, the average visit during the first event lasted 5:30 minutes, which went down to 3:11 minutes during the second event. This could be due to the users being already familiar with the website.



Web stats for the 1st event, the 2nd event, and the whole period since the website was open until a month after Dr Rob’s paper was published

Although the number of page views was higher during the first event, it looks like the improvements in the second event – such as starting 6 weeks **earlier**, making the participation **easier** for teachers and improving the communication in the site and our emails so everything is **clearer** – helped us gain a higher number of visits and unique visitors.

	1st event 2011/2012	2nd event 2012/2013	TOTAL
Visits	6,548	7,161	17,540
Unique visitors	3,797	4,682	11,612
Page views	26,838	19,928	53,265
Home	7,727	6,427	16,004
Data entry	1,995	1,981	4,051
Analysis	1,901	927	2,940
Meet the scientists	748	179	981
Lesson Plan One	577	214	852
About Flu	712	221	1,057

2.3. Teacher phone interview

We emailed some of the teachers who have uploaded data to the site during the second season, asking whether we could interview them on the phone. Only one, Patrick Rennie, from Tiffin School, replied.

Patrick thought that *Decipher my Data: Flu!* “was a good opportunity for loads of students to take part in a very interesting national survey. It was also convenient that it was something that took place during an extended period of time, not just one day in the lab.”

One of our main concerns with the project is that it takes too much time and effort from teachers who take

part. However, Patrick decided to give his students access and let them lead on the rest. *“I’d meet them every couple of weeks to be updated.”* Therefore, he didn’t devote too many lessons to *Decipher my Data*, as most was done during lunch time, or after school.

Patrick said that his students *“really enjoyed it”*, developed abilities such as team work, time and project management... and *“learnt that science is not just putting something in a test tube and waiting to see what happens. There’s a grey area. Lots of data to look at.”* Finally, Patrick said that some of his students were using *Decipher my Data* in their university interviews, as it is something different and interesting to talk about. For them, having a high institution like UCL, as a project partner bring an additional interest and was a vital part of the project.

From a more formal point of view, Data Analysis and Representation is part of A level exams, so *Decipher my Data* was also useful because students learnt how to represent data. During school lessons, Patrick used the data as a case study: *“Any piece of data would have been useful, but with this they have some degree of ownership.”*

When asked about things he’d changed, Patrick said he would have liked more schools to upload data. His main concern about the whole project was regarding the final results in the academic paper and whether the data collection process was trustworthy enough. Other than that, he said that the organisation of the project was fine and he would definitely participate again.

2.4 Project team interview

Project Director Shane McCracken said he decided to run *Decipher my Data* for many reasons: *“There was at the time an awareness that the teaching of maths and science wasn’t particularly good; with universities having to teach foundation maths at undergraduate level so they could do the maths they were going to need later (in their degrees). Also, students were learning about how other people do science rather than doing science themselves.”* The particular topic of flu was chosen because *“it was relevant, new, we had an epidemiologist in the team, and we could get funding from the Wellcome Trust.”*

Leading scientist Dr Rob Aldridge decided to join the project because *“our research department was aware of the fact that a lot of influenza transmission occurs in school age children, however, current surveillance lacks good data in this area. This project was an opportunity to explore the feasibility of using school absence data, as providing a great learning experience for schools to find out more about epidemiology and the sort of analyses we conduct.”*

Shane saw *Decipher my Data: Flu!* as a pilot project that could serve as kick-starter of a series of projects around *Decipher my Data*. As there was no flu outbreak the first year, and different mistakes had been identified, he decided to run the project a second year to *“see how it would develop with flu and fixing those mistakes.”*

Shane’s expectations have not been fulfilled *“This year it was better than last one, but not near what we wanted. Despite making it simpler, clearer, easier, we didn’t change the flow of the heart of the project. There were still lots of data that needed to be collected by the teachers, so we got less teachers involved than we expected.”* Nevertheless, he identifies several project gains: *“Users were able to upload and analyse data, it was an useful experience for those who took part, and we got enough data for a paper. We were able to demonstrate that the Decipher my Data concept works even if this particular execution didn’t*

go too well.”

Dr Rob acknowledges that most of his expectations were fulfilled, but that he “*didn’t foresee that the project was going to be as complicated and time consuming as it was. We also didn’t get as much interaction as we would have liked.*”

When asked about what he had learned, Dr Rob said that, apart from gaining more insight into how to run the project more efficiently, “*I learnt a lot, and I like the way it makes me think about the questions that I ask to run my research projects.*” That is one of the reasons why he said he would do it again and recommends it to his colleagues “*As a scientist, you can take public engagement as requirement for some of your funding sources, and you can treat it as a ‘tick the box’ or you can do it properly, which requires a lot of thinking and a lot of time and effort, but it is a very rewarding process.*”

In Shane’s opinion, teacher participation has been the main flaw of the project. “*We got a low number of teachers involved, due to the fact that too much time was needed. They needed to get data from the school administrator every week over the winter period. We were asking a lot of them for just one lesson.*” He said that in the future “*there should be a learning value in data collection*” and if there isn’t any “*teachers should have nothing to do except for analysis and reporting.*” Finally he said that other small changes to encourage interaction in the website and facilitate the registration process will also be needed in future projects. Rob agreed with the above and said that if he was to run the project again he “*would simplify the message. We did simplify it from year one to year two, but it was still too complicated.*”

2.5. Findings and lessons learnt

The project was successful in certain areas, such as:

- The concept of the project was very well received by teachers, who are looking for new ways to involve their students with science, and particularly with real data.
- We have successfully created a platform through which users were able to upload and analyse data.
- We were able to demonstrate that the *Decipher my Data* concept works even if this particular execution wasn’t as successful as we expected.
- Dr Rob Aldridge got data from over 40,000 students, enough to write an academic paper, to be submitted for publication.

However,

- The project did not fully meet its objectives. We didn’t get as many schools as we would have liked to involve in the project.
- The main barrier to participation was the high time requirement from teachers. The data collection process was 100% dependent on teachers and required a very high commitment just for one lesson, which clearly discouraged them from taking part in the project.
- There was no flu outbreak in the first year, and the flu peak occurred over the Christmas Holidays in the second year, which meant that the results of the paper are still inconclusive.

3. Future

Decipher my Data: Flu! Has served a pilot for other *Decipher my Data* projects. We've learnt that we need to consider very carefully what we ask for and what we are giving in return. The data collection process in *Flu!* was completely dependent on teachers and required a very high time commitment on their side just to get one lesson in return. This clearly discouraged them from taking part in the project.

Therefore, we've learnt that teachers' involvement in the project should be focused around analysis and reporting, and not data collection. Following this reasoning, in our next project data will be automatically collected. We don't think this is needed in every case, but there should be a learning value in the data collection if we ask students or teachers to devote their time to it. We are also making changes to our website to ease communication, encourage interaction and facilitate the registration process.

Our latest project, **Energy**, is built around the topic of school's energy usage. Data are collected automatically and teachers can use them to help staff and primary students learn about this energy usage, reduce it and compare it with other schools.

The *Energy* project is currently being piloted with schools in the Bristol area (energy.deciphermydata.org.uk/)