

Now we are three: A perspective on Computational and Data Journalism education

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Abstract: In this talk we present the key findings from the process of designing a new joint-honours Master's degree combining Computer Science and Journalism, and discuss the lessons learnt from the first three years of delivery. We discuss the design and evolution of the course in terms of its learning outcomes and the practical skills taught, the changes made during the first three years, and reflect upon the experiences and outcomes from delivering the course

Keywords: Data Journalism Education.

Introduction

The MSc in Computational and Data Journalism is a one-year level 7 postgraduate course taught at Cardiff University, designed to take applicants from a broad spectrum of backgrounds¹ and teach them a set of Journalism and Computing skills needed to succeed in the modern newsroom. First introduced in 2014/2015, it is now in its third year and has produced graduates who have gone on to work for journalism organisations around the world in roles such as data-journalist and newsroom developer. We present here a reflection on the first three years of delivering the course, the key principles underlying the design of the course, and lessons learnt that may be useful to those interested in computational and data journalism education.

A unique proposition of the course is that it is truly a joint-honours course, with invested and accessible course-directors from both academic schools involved. Both schools have made significant commitments in terms of new modules and teaching resources to develop and deliver the course.

Course Design

One of the key struggles for designing a cutting-edge joint-honours course is a lack of relevant subject benchmarks and people specifications, and few examples of existing UK courses. Individual subject benchmarks and specifications are not entirely relevant to the course². Some previous data was available for guidance (e.g. (Yarnall, Johnson, Rinne, & Ranney, 2008)) but these are limited, being focused on past versions of the tools and techniques used in the news industry. The relatively recent introduction of freedom of information to the UK compared to the US results in the UK industry playing catch up. A lack of data journalism tradition results in less guidance on which to build a practice focused course. A reliance on generic frameworks (Higher Education Funding Council For Wales, 2015; QAA, 2008) was backed up by consultation with several industry sources to gather input and feedback on the plans. It was deemed more relevant to consult practitioners on the required skills, knowledge and qualities of potential graduates, rather than relying upon what could be perhaps a more academic assessment of the discipline. This industry input helped guide our thinking about how an 'educated person' (Boyer, 1995) from this course should look. No single curriculum design model was used in the design process, but rather a 'best effort' approach was used combining relevant modules from both schools, with gaps in curriculum filled with new modules where necessary. Elements of Tyler's model (Tyler, 1949) can be found in our process, as are aspects of Alexander's model (Alexander, 1997), although with a focus on what should be learnt, how it should be learned,

¹ No prior knowledge of either computing or journalism is required, just a 'good' first degree or relevant work experience.

² No QAA subject benchmark exists for Journalism at the postgraduate level - other postgraduate courses rely on benchmarks from professional organisations such as the NCTJ, however, these bodies are not necessarily relevant for a course in Computational and Data Journalism. Meanwhile, the QAA subject benchmark for Computing (QAA, 2011), while a useful guide, is not entirely relevant.

taught and assessed, and what an educated person should be, with not as justification as to *why* learners should be educated this way. ILOs are written using a Constructive Alignment model (Biggs, 1996).

Course Structure

Resource pressures meant that we had to fit as much as possible within existing courses and modules. Gaps were filled by new modules: two new Computer Science modules: one on web development and one on data analysis and visualisation, backed up in the third year with a new Journalism module: Data Journalism. Inclusion of the core foundational data journalism and coding knowledge taught in the first semester is critical, a view reinforced by (Berret & Phillips, 2016) in their recent report, which highlights the same key skills and knowledge requirements identified when designing our course. Comparing the structure of our MSc to their suggested programme structures shows a commonality of modules and topics which validates our approach. One key point raised by our guiding industry and academic panel was that students needed space to fail that was free from assessment load and supported by the teaching team. This resulted in a series of harmonisation workshops known as The Lab. This space allows staff from computer science and journalism to support students with their learning – inevitably their coding in the early part of the course – but also allows the team to discuss application of techniques in the newsroom and run mini projects. These often involve Freedom of Information applications for data as well as domain-specific implementations of their computer science classes.

Does everyone need to learn to code?

The coding aspect of the course is a particular concern for those students entering the course from a non-technical background, as ‘programming’ itself can be considered a threshold concept (Meyer & Land, 2003). In our experience so far this has not proven to be an insurmountable barrier. The benefits of including technical coding modules have been clear to see in the outputs from the students and the career paths they have taken. The coding modules within the programme are shared with other ‘conversion’ MSc courses which have a long tradition of successfully educating students from non-technical backgrounds.

Digital Investigation

A key innovative module on the course is ‘Digital Investigation’. In this module, students work in teams as close to a real-world ‘investigation’ team as possible. They are responsible for managing their own projects using an Agile methodology (Fowler & Highsmith, 2001; Maher, 2009). They are also responsible for self-managing the learning and skills acquisition required to successfully complete their project. A Connectivist learning model (Siemens, 2005) assumes that the student teams will work as social networks, sharing and gaining knowledge together from a diverse set of sources in a form of peer learning (Havnes, 2008), which has been found to work quite successfully in our experience. In this module a diverse set of technological tools are used, such as Slack³ for communication, Trello⁴ for project management, and Github⁵ for code and resource sharing. This module provides students with a safe space to fail, before heading out to work on real-world projects.

Reflection and Review

The course launched (as the MSc in Computational Journalism) in 2014/2015 with our first cohort of students. Based on personal reflection and feedback and evaluation from the first ‘alpha-test’ year, we made initial immediate changes for the second (‘beta-test’) year in 2015/2016, while planning for larger changes for the 2016/2017 year. Initial changes were fairly small such as adjusting the group assessments in Digital Investigation in order to take individual contributions into account to mitigate issues such as social loafing (Latané, Williams, & Harkins, 1979)⁶. We have kept many ‘unique’ aspects, such as the harmonisation ‘Lab’ seminars in the autumn semester. Data Journalism in the Autumn semester replaces the original Digital Journalism.

³ <http://www.slack.com>

⁴ <http://www.trello.com>

⁵ <http://www.github.com>

⁶ Although a small change this is a minefield of potential pitfalls (Gibbs, 1997)

Intake

Initial assumptions held that the course would skew mostly towards home students, with international students as a minority. This situation was reversed in the first two years, with more international students than Home/EU. A further assumption was that as a technical course intake would be skewed towards male students, as in many other STEM subjects. However, the first year was 75% female, and both the second and third years are an equal split male/female. The issue of gender equality in STEM subjects is well considered (Baker, 2013; Cheryan, Plaut, Davies, & Steele, 2009), but so far we have found no issues with gender participation in the new course.

Conclusions

Key to the success of this course has been a truly joint operation between both involved schools, with time and effort allocated for course-directors to ensure that the course is not a 'data journalism + some coding' or a 'computing + some journalism' programme. Providing ample practice focused time for the students and allowing them the space and support to be able to try new things, and fail if necessary has been vital.

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