The New Zealand Experience with CensusAtSchool

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1. Introduction

The New Zealand *CensusAtSchool* project launched in August 2003 and was a huge success with the level of interest and participation exceeding our expectations. Over 18,000 responses were gathered online from children aged from 9 to 15 years. Questions covered areas such as diet, exercise, reaction times and access to technology.

The project was led by Royal Society teacher fellow Megan Jowsey, along with Rachel Cunliffe who managed the technical aspects with help from James McGrail. *CensusAtSchool* New Zealand was run with the support of the University of Auckland's Department of Statistics, Statistics New Zealand, the Ministry of Education and other International *CensusAtSchool* project leaders.

2. Technical Issues with Online Surveying

Despite having a team of only two setting up the website (http://www.censusatschool.org.nz), working on a limited budget with tight time constraints, Internet technology enabled us to achieve a great deal. Collecting the data solely online was appropriate as all New Zealand schools had Internet access and as a result of government initiatives, many schools were already on broadband connections.

Online surveying offers many advantages over other surveying methods including reduced costs and speed of data collection. The surveying software was custom-built by Rachel Cunliffe and James McGrail using a combination of XHTML, CSS, Javascript, PHP and MySQL.

To help foster interest and participation, the site was created with New Zealand school children in mind. The design was kept bright, simple and themed around outdoor activities. Care was taken to ensure the site would load quickly for those on slow connections. The survey was made available in both official languages; English and Maori.

Figure 1: New Zealand *CensusAtSchool* website

Creating an extremely usable and accessible survey was a high priority due to the variety

of operating systems and browsers that schools used. All code was validated, checked against current accessibility standards and tested in multiple system configurations. Specific browser requirements were kept to a minimum of having Javascript and cookies enabled. Simple ways for teachers or students to verify these requirements were provided, along with instructions for enabling these if required.

We provided email and telephone support and teachers appreciated being able to have direct contact with those behind the project. The majority of problems experienced were related to logging in, a lack of computers for students or time constraints. Professional development for teachers in spreadsheet skills and teaching of statistics is desperately needed; especially for primary school teachers. Support of this type has been offered in most other *CensusAtSchool* projects and contributed to their success. Our project suffered by being only a one year project with a lack of continuity and funding with a significant proportion of time being spent trying to gain sponsorship for the project, rather than creating educational resources.

Authentication proved to be a logistical dilemma as the tighter the security, the more administration for teachers and, in turn, the less likely students will be able to participate. Rather than a unique identification code being generated and given to each student, a compromise was reached by having one code per school. To reduce false data, the survey was unable to be accessed outside school hours.

Both client and server side automatic rigorous data checking and validation were employed to reduce the amount of invalid or erroneous data. Specific attention was paid to providing user-friendly feedback and encouragement for students to continue filling in the survey. Data was collected in a secure database and summary statistics were displayed in real-time during the survey period.

By building the software in-house, we could ensure that the survey software was tailor-made for the questions that were asked. A minimal amount of data cleaning was required after the survey period; primarily on text-based answers and this was achieved using database queries. The data was then publicly accessible soon after the close of the surveying period.

The random sampler (*Figure 1:* **New Zealand *CensusAtSchool* website**) proved to be a popular resource for teachers and students, allowing them to access random data sets directly from the database. These were available as multivariate Excel spreadsheets.

3. Conclusion

CensusAtSchool New Zealand provided a live statistical experience with real data which is relevant to students' lives. With small teams it is possible to effectively survey and process data from large numbers of people using online technology. More teaching resources could have been created had the team been larger.