WESTERN SYDNEY
UNIVERSITY

Institute for Culture and Society

Student Research Program 2015

Project Lists

Project 12: Exploring visual tools for visualizing and communicating data in innovative ways: Safe and Well Online

Supervisor(s): Dr Phillipa Collin and Dr Teresa Swist

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Project description

Are you keen to apply your design and communication skills to an innovative project?

Interested in digitising and curating data from a project young people's perspectives on critical issues shaping experiences of safety and wellbeing online?

Want to learn how four social marketing campaigns have been co-designed with young people, researchers, non-profit organisations and digital and creative companies?

If so – join us!

Safe and Well Online is developing and testing a program of online, youth-centred social communications to promote young people's safety and wellbeing online. The Institute of Culture and Society is facilitating the stakeholder component of the project, which involves participatory design with young people and project partners.

This intern project will involve digitising, curating and visualizing participatory design data collected from four campaigns: Keep it Tame, Appreciate a Mate, Something Haunting You and Goalzie. The intern will upload this data onto a digital timeline, plus explore visualization tools for displaying research data in new and interesting ways.

Example of participatory design data include:

- Notes from participants about their technology use and insights into wellbeing
- Reflections about their involvement in the process and the campaign development
- Photos of activities and products created during the workshops and interviews
- Transcripts of paired-interviews
- Summaries of the participatory design workshops

Project Aims

- To digitize and curate content from the participatory design process onto a digital timeline;
- Conduct data analysis by typing data into qualitative data analysis software tools to create word-clouds and identify themes, insights and keywords;
- To gain insights into the role of digital websites/archives and software/visualization tools for displaying, annotating, analysing and visualizing participatory design research in an easily accessible and engaging way.

Project Methods

Developing a digital timeline: photographing and uploading onto a digital timeline to display the participatory design process over the course of four social marketing campaigns;

Designing the usability of the visual tool: tagging digital content and arranging it so that data can be easily searched for;

Data visualisations: exploring a range of visualization tools to display and remix the photos, texts and findings in interesting ways.

Final Report Requirements

The intern will be asked to prepare two short reports:

- The first will describe the tools, steps and decision-making processes of designing the digital archive.
- The second will be a reflexive piece of around two page report detailing their activities over the internship, i.e.:
    - Reflections about the process/activities undertaken: digitizing and curating data;
    - Insights about the best ways to curate and tag online content to enable easier analysis and remixing of data;
    - Ideas about which visualization tools work best for presenting research data in new and interesting ways;
    - Recommendations for how this archive could be developed further by future interns.

Opportunity for Skill Development

The student will gain experience about how data from research projects can be archived and curated in new and interesting ways;

Skills they will acquire include: digitizing research data and curating it as part of a digital archive;

They will learn about participatory design processes, data and analysis from Dr Pip Collin (an experienced researcher) and Dr Teresa Swist (a Postdoctoral Research Fellow)

Students are required to have the following skills/meet the following pre-requisite(s) to apply

Essential

- Strong interest in user interface design of websites/archives
- Basic experience in digitizing and curating content online
- Interest in learning about innovative digital tools for visualizing and searching data
- Final year undergraduate student (e.g. Bachelor of Communications/Design/Marketing/ Computing/Information Technology)

Skills

- Excellent writing and communication skills
- Software skills: Microsoft Office, Endnote, NVivo
- Strong organizational skills and attention to detail
- Positive attitude and willing to learn

Project 13: Digital Capacities Index

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Project description

Digital connectivity has become critical to living well in contemporary society. As mobile and networked technologies become ubiquitous, enabling individuals and communities to maximise the benefits of the internet depends on fostering fundamental 21st century capacities. These new *capacities* are central to the economic, political and cultural life of Australians and must be nurtured from early childhood, and through the life span, in households, workplaces and communities. Google and Western Sydney University are partnering to develop a rigorous and holistic measure of digital capacity, and to survey approximately 1,200 Australians to establish national baseline data of current capacities. The larger project, to develop and apply a Digital Capacities Index (DCI), is a significant opportunity to develop tools, policies, products and services to support the digital capacity of the broadest possible population.

This particular project, *Envisioning Australia's Digital Capacities*, will begin once the baseline survey has been conducted and the resulting data made available. It will explore innovative ways to **analyse**, **mash-up**, and **visualise** the baseline data against other publicly available data sources.

The **analysis** will involve generating descriptive and inferential statistical summaries from the survey data, including: mean, standard deviation, range and frequency distributions of specific capacity items; t-tests and ANOVA to check for significant variations of capacities between demographic variables (age, gender, income, urban / rural dwelling, and so on); and cronbach alpha tests of the reliability of index scales. The **mash-up** activity will look to combine, compare and correlate the survey data against a range of public data sources, including ABS demographic and economic data, and available Internet connectivity and app usage statistics. The **visualisation** activity will seek to plot the analysis results using a mix of conventional and innovative techniques. In addition to conventional charts (e.g. histograms, scatterplot diagrams), this activity will explore use of maps, animations, network and cluster diagrams to communicate survey results in interesting and novel ways.

Project Aims

- To discover key indicators and patterns in Australia's digital capacity, using data gathered from the baseline survey of Australia's digital capacity
- To understand how those indicators and patterns compare against other publicly available data, such as income, population density and speed of Internet connectivity
- To communicate results from aims (i) and (ii) to other project staff, Google Australia and other stakeholders clearly and effectively

Project Methods

Confirmatory and exploratory data analysis: use *R* and related tools to summarise, test hypotheses and use exploratory data mining techniques of baseline survey data

Data harvesting, combining, and synthesis: Locate and harvest publicly available data sets; combine and merge those data sets with survey data; employ further exploratory data analysis to look for patterns, correlations and surprising results.

Data visualization: Develop a "gallery" of visualization tools and options that respond to the needs and demands of different project stakeholders, and potentially a broader public, using tools such as *R*, *ggplot2*, *D3.js*, *plot.ly* and *Tableau*.

Final Report Requirements

A two page report detailing their activities over the internship, i.e.:

- Reflections about the process/activities undertaken: data analysis; data mash-ups; and data visualization.
- Insights about the best ways to combine DCI survey data with other public data;
- Ideas about which visualization tools work best for presenting research data in new and interesting ways;
- Recommendations for how project outputs (data files, *R* code, visualization tools) could be developed further by future interns.

Opportunity for Skill Development

The student will gain experience about how data from research projects can be archived and curated in new and interesting ways;

Skills they will acquire include: digitizing research data and curating it as part of a digital archive;

They will learn about participatory design processes, data and analysis from Dr Pip Collin (an experienced researcher) and Dr Teresa Swist (a Postdoctoral Research Fellow)

Students are required to have the following skills/meet the following pre-requisite(s) to apply

Essential

- Strong interest in data analysis and visualisation
- Basic experience in using R and relevant data visualization tools (at least *ggplot2*)
- Enthusiasm for experimenting with novel forms of data analysis and presentation
- Interest in research field of measuring digital capacities

Skills

- Excellent writing and communication skills
- Software skills: R, R Studio, relevant visualization tools (ggplot2, plot.ly, Tableau)
- Strong organizational skills and attention to detail
- Positive attitude and willing to learn

Project 14: Examining young people's experiences of Participatory Design in the Safe and Well Online project

Supervisor(s): Dr Phillipa Collin and Dr Teresa Swist

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Project description

Are you keen to examine how young people experience Participatory Design projects?

Interested in analysing and visualizing participant data from a project exploring the intersections between young people, technology and wellbeing?

Want to learn about the role of Participatory Design in a project on social marketing campaigns for promoting youth safety and wellbeing?

If so – join us!

Safe and Well Online is developing and testing a program of online, youth-centred social communications to promote young people's safety and wellbeing online. The Institute of Culture and Society is facilitating the stakeholder component of the project, which involves participatory design with young people and project partners.

The intern project will involve **analysing** and **visualising** participatory design data collected in the development of four campaigns (Keep it Tame, Appreciate a Mate, Something Haunting You and Goalzie). The aim is to examine young people's experiences of the PD process. The intern will identify two methods for collating and analysing data and then explore this data to identify key insights on young people's experiences.

Example of participatory design data include:

- Reflections about their involvement in the process and the campaign development
- Photos of activities and products created during the workshops and interviews
- Transcripts of paired-interviews
- Summaries of the participatory design workshops

Project Aims

- Develop an understanding of participant experience of the PD process in SWO by analyzing participatory design data.
- Conduct data analysis (e.g. creating word-clouds and identifying themes, insights and keywords);
- Assess participant reflections on the PD experience and make recommendations for improvements.

Project Methods

Data entry: inputting data from the participatory design process over the course of four social marketing campaigns;

Data analysis: identifying preliminary themes, insights and keywords;

Data visualisation: learning how visualization tools can display and remix preliminary findings in new and interesting ways

Final Report Requirements

The intern will be asked to prepare two short reports:

- The first will summarise the methods, present analysis and key findings on young people's experiences of PD.
- The second will be a reflexive piece of around two page report detailing their activities over the internship, i.e.:
    - Reflections about the process/activities undertaken: analyzing and remixing data;
    - Insights about the two methods chosen for data analysis;
    - Ideas about how visualization tools work can help present preliminary data findings in new and interesting ways;
    - Recommendations for how this data could be analysed further by future interns.

Opportunity for Skill Development

- The student will gain experience about how data from research projects can be analysed and re-mixed in new and interesting ways;
- Skills they will acquire include: conducting qualitative data analysis and creating visualisations;
- They will learn about participatory design processes, data and analysis from Dr Pip Collin (an experienced researcher) and Dr Teresa Swist (a Postdoctoral Research Fellow)

Students are required to have the following skills/meet the following pre-requisite(s) to apply

Essential

- Strong interest in learning about data analysis
- Awareness of data collection and analysis processes
- Interest in learning about data analysis and visualizing data in innovative ways
- Final year undergraduate student (e.g. Bachelor of Social Science)

Skills

- Excellent writing and communication skills
- Software skills: Microsoft Office, Endnote (plus an interest in learning about NVivo and, Leximancer)
- Strong organizational skills and attention to detail
- Positive attitude and willing to learn