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Professional Development for Academics: Evaluating a Personalised Mobile Website for Learning from Student Feedback

Final report 2016

The University of Sydney

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http://askcharlie.co/about/

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List of acronyms used

HREC	Human Research Ethics Committee – the relevant ethics committee at The University of Sydney
ITL	Institute for Learning and Teaching at The University of Sydney
OLT	Australian Government Office for Learning and Teaching
SET	Student Evaluation of Teaching
USE	Unit of Study Evaluation – the SET survey used at The University of Sydney

Executive Summary

The Seed Project "Professional Development of Academics: Evaluating a Personalised Mobile Website for Learning from Student Feedback" involved the design, development, and evaluation of a mobile website for supporting early-career academics' professional learning from their student evaluation of teaching (SET) results. The project builds on previous research (Marsh & Roche, 1993; Penny & Poe, 2004), which demonstrated that working with individual academics on their SET results to identify appropriate teaching strategies is effective for professional learning. However, traditional approaches involve individual face-to-face consultations and are labour and time-intensive.

The project evaluated the use of an interactive cross-platform mobile website as an alternative approach to provide timely and relevant support in a way that is more effective, pedagogically-driven, and digitally mediated than the traditional approach.

Key questions that the project aimed to answer included:

- How effective is an interactive mobile website in helping early-career academics to improve their assessment practices in different contexts?
- What combinations of digital resources and exemplars of best practice in assessment provide incentive and support for early-career academics to improve their pedagogy?

The project implemented and advanced a recommendation from a completed ALTC project (Rice, 2011) for enhancing assessment, as the issue "is not necessarily to generate new ideas about assessment, since there are plenty of those lying around unused, but rather to connect academics ... with ideas about assessment in a form that ... offers pathways to solutions" (p. 2). The aim of the OLT project was to connect early-career academics to existing practical ideas about assessment, and provides personalised resources and strategies to improve their practice. *Ask Charlie* was therefore designed with early-career academics in mind, however it can also be used by and useful to academics, who are not early-career. Indeed, the participant sample for the semester-long trial of *Ask Charlie* also included mid-career academics. *Ask Charlie* has the potential to be scalable to expand to other universities, include other common institutional SET items, and add a wide range of best practice case studies from across the sector.

At the outset the objectives for the mobile website were:

- To anticipate early-career academics' immediate professional learning needs (Chambers, Threlfall & Roper, 2012) by harnessing SET database information on class size, year level and discipline;

- To engage academics through rich content, active control and connectedness (Coursaris & Sung, 2012);
- To provide just-in-time support by delivering personalised, pedagogy-driven resources at the same time as an academic's student feedback; and
- To provide networking opportunities for peer interaction, a key strategy recommended for enhancing traditional face-to-face SET consultation (Penny & Poe, 2004).

The outcomes of this project are:

1. Insights into academics' knowledge of instructional design and assessment, and whether and how they currently use SET results for improving their teaching;
2. A mobile website that is optimised for tablet computers, but also runs on smartphones and desktop computers;
3. A project website featuring a description of the research and its outcomes and a link to the mobile website and a Twitter blog with project updates;
4. A publication submitted to the Australasian Journal of Educational Technology; and
5. A final report.

The project followed a design-based research methodology, which posits "synergistic relationships among researching, designing, and engineering" (Wang & Hannafin, 2005, p. 5). These processes involve participant collaboration as well as iterative design and implementation in order to advance educational theories and practices. In this study, the following research methods were used to collect data from stakeholders and potential users throughout the iterative design process:

- In-depth video interviews with 5 experienced academics and 2 undergraduate students. These interviews were also edited and published in the form of short video testimonials.
- Focus group evaluations of the initial prototype to gather early user feedback (3 groups with 2 academics each).
- Individual evaluations of the initial prototype to gather early user feedback with 4 academics.
- An online survey completed by 17 academics, who also participated in the semester-long trial.
- A semester-long trial of the mobile website with 48 academics.

- Exit interviews with five academics, who participated in the trial.

Design-based research often involves artefacts, which are "policies, programs, or pedagogical tools that individuals employ to promote, evaluate, or understand learning" (Halverson, Halverson, Gnesdilow, Curwood, Bass, & Karch, 2010, p. 172). In order to build an educational artefact, it is critical to understand users' beliefs, practices, and needs. We conceptualised *Ask Charlie* as an artefact and used the design framework as a way to understand how academics, as both real and potential users of *Ask Charlie*, participate in formal and informal professional development, engage in assessment, and learn from SET results.

The analysis of the data collected with the methods listed above through the lens of a design framework (Halverson, et al., 2010) revealed the following key findings:

- Academics use a variety of sources to engage in reflection. In addition to SET results, several academics discussed designing their own surveys, holding focus groups, discussing teaching practices with colleagues, and taking detailed notes throughout the semester.
- Academics' assessment practices often changed based on their critical reflection in conjunction with student feedback.
- Weekly reminder emails were seen as a valuable strategy for encouraging users to engage with *Ask Charlie* and to discover new teaching resources.
- The ability to directly contact experienced academics via email through the website was positively received, but needs to be more prominently placed.
- Time for teaching/reflection and timing of access are critical factors for professional development and reflection, with many academics stating that they would have liked to use the website more often but did not have the time.

The recommendations generated from this research for the use of a mobile website for academic professional development are:

- Provide guidance about how to use the website in order to achieve certain goals;
- Increase the value of the website for planning the implementation of new teaching strategies by allowing users to take personal notes;
- Allow academics to import their own SET data as well as data from other sources;
- Integrate the website with existing strategies for academic professional development, such as faculty- and university-based learning and teaching training programs.

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Chapter 1: Introduction

The Seed Project "Professional Development of Academics" involved the design, development, and evaluation of a mobile website for supporting early-career academics' professional learning from their student evaluation of teaching (SET) results. Previous research (Marsh & Roche, 1993; Penny & Poe, 2004) has demonstrated that working with individual academics on their SET results to identify appropriate teaching strategies is effective for professional learning. Traditionally, this approach has involved individual face-to-face consultations, which is labour and time-intensive, and does not necessarily provide all academics with "just in time" support. The project evaluated the use of an interactive cross-platform mobile website as an alternative approach to provide timely and relevant support in a way that is more effective and pedagogy-driven than the traditional approach.

The project addressed an Innovation and Development Program priority by evaluating the effectiveness of a mobile website in providing SET results to early-career academics, and identifying relevant and appropriate new teaching strategies linked directly to these results for academics to pursue. The project also addressed a Seed Projects priority by building the capacity of early-career academics through the interactive mobile website that personalises recommended teaching strategies and delivers 'point of need' support (see Design Specifications).

The objectives for the mobile website were:

- To anticipate early-career academics' immediate professional learning needs (Chambers, Threlfall & Roper, 2012) by harnessing SET database information on class size, year level and discipline;
- To engage academics through rich content, active control and connectedness (Coursaris & Sung, 2012);
- To provide just-in-time support by delivering personalised, pedagogy-driven digital resources at the same time as an academic's student feedback; and
- To provide networking opportunities for peer interaction, a key strategy recommended for enhancing traditional face-to-face SET consultation (Penny & Poe, 2004).

A mobile website was chosen as delivery medium in order to meet early-career academics' ongoing professional learning needs as they strive to overcome teaching problems in everyday settings and move across using smartphones, tablet and desktop computers, at work and home (Sharples, Taylor & Vavoula, 2005). Developed as a cross-platform

application, the mobile website can be accessed on mobile devices or desktop computers, using any standard web browser.

The project built on existing knowledge about individually structured interventions to enhance teaching effectiveness by creating a software application of Marsh and Roche's (1993) paper-based 'idea packets' of recommended teaching strategies that were provided to academics on the basis of their SET results. The project advances knowledge in this field of research by utilising the latest evidence-based digital resources and video-supported exemplars of best practice, which are linked directly to academics' SET results in an interactive and appealing design. It piloted a sustainable and coherent approach by targeting assessment, which is arguably the most important element of university curricula for teachers and students (Joughin, 2010). Early-career academics find responding to assessment SET results particularly challenging partly because they perceive "that there is little incentive" for innovation (Norton, Norton & Shannon, 2013, p. 1).

Key questions that this project aims to answer include:

- How effective is an interactive mobile website in helping early-career academics to improve their assessment practices in different contexts?
- What combinations of digital resources and exemplars of best practice in assessment provide incentive and support for early-career academics to improve their pedagogy?

The deliverables of this project are:

1. Insights into academics' knowledge of instructional design and assessment, and whether and how they currently use SET results for improving their teaching;
2. A mobile website that is optimised for tablet computers, but also runs on smartphones and desktop computers;
3. A project website featuring a description of the research and its outcomes and a link to the mobile website and a Twitter blog with project updates;
4. A publication submitted to the Australasian Journal of Educational Technology; and
5. A final report.

Being a Seed Project, the project focused on the development and evaluation of the mobile website in a way that will enable further development and evaluation of mobile solutions for supporting academics' professional learning from their SET results. The research team is currently applying for funding to conduct further studies with the mobile website.

Value and Significance

Developing and evaluating a mobile website solution to engage academics with their SET results to enhance their teaching is of value to the higher education sector because it satisfies national and institutional priorities. It fulfils the requirement of higher education providers to ensure "that staff ... are advised of student and other feedback on the quality of their teaching and have opportunities to improve their teaching" (TEQSA Act, Higher Education Standards Framework, 2011, p. 2). The mobile website informs early-career academics of their SET results, and in a cost-effective way, recommends best practice teaching resources and enhancement strategies. This project implements part of the institutional strategic plan (The University of Sydney, 2011) by "develop[ing] new tools for identifying teaching and learning strengths to ... support the promulgation of best practice" (p. 17) and by helping early-career academics to "implement the assessment principles flowing from the Academic Board review" (p. 17). The project implemented and advanced a recommendation from a completed ALTC project (Rice, 2011) for enhancing assessment, as the issue "is not necessarily to generate new ideas about assessment, since there are plenty of those lying around unused, but rather to connect academics ... with ideas about assessment in a form that ... offers pathways to solutions" (p. 2). The project connected early-career academics to existing practical ideas about assessment, and provides personalised resources and strategies to improve their practice. Although the initial focus was on early-career academics, it can be used by all academics engaged in teaching and as such is not limited to early-career academics. The mobile website that was produced during this one-year Seed Project can be scaled up to:

- Expand to other universities;
- Include other common institutional SET items and/or to allow individual academics to upload their own SET data; and
- Allow users of the mobile website to add best practice case studies from across the sector.

Innovation

The first innovative aspect of this project was to engage early-career academics with their SET data on assessment by delivering these results as appealing 'infographics' (Vande Moere, Tomitsch, Wimmer, Christoph & Grechenig, 2012). Unlike past SET reports at The University of Sydney that focused on single-semester numerical data, academics are able to easily interpret their latest results, see visual representations, and identify trends in their data across several semesters (see Figure 1).

The second innovation of this project was the provision of personalised best practice resources and case studies; both automatically, by harnessing data on class size, year level and discipline from the SET database system, and interactively, through active control

(Coursaris & Sung, 2012). Once academics have logged in they are able to select the types of assessment tasks that they currently use (e.g., multiple-choice final exam). Then academics can access the approaches recommended for their broad grouping or 'field' (e.g., for a large class size in Science, short online quizzes staged across a semester could be recommended). Along with other resources, we produced short digital video testimonials from teachers and students involved in best practice case studies to encourage early-career academics to implement new assessment strategies. Academics are able to set goals and personalise a digital record of their plan, important for " ... provide[ing] a sense of purpose and direction in teachers' improvement efforts" (Penny & Poe, 2004, p. 247).

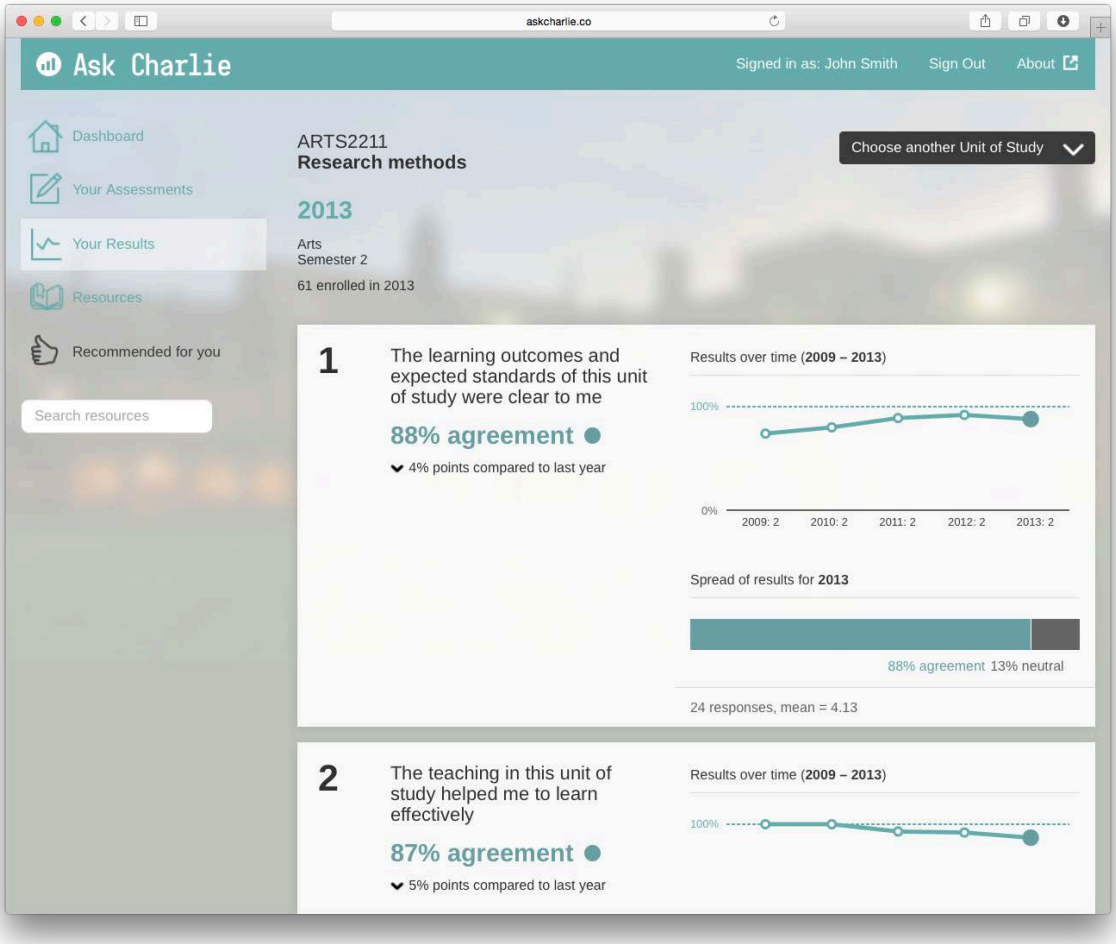


Figure 1. SET results for a unit of study, where data is available since 2009. The results are plotted over time to allow for easy comparison of the performance on each question across semesters. The questions and their results are displayed as a list; here the results for the first two questions are shown. (The unit coordinator name, unit of study code and name, and SET data are fictional data for the purpose of demonstrating the functionality of the mobile website.)

The third innovation of this project was to engage early-career academics in connecting and networking with other website users, and peers involved in best practice case studies. Academics are able to email colleagues (where contact details are available), to seek advice and/or arrange informal conversations, from which they can learn about teaching

(Thomson, 2013) (see Figure 2). Such “peer consultation [around SET results] … facilitates the development of a collaborative learning culture in which there is sharing and openness about teaching” (Penny & Poe, 2004, p. 245). Automatic reminders were sent to academics via email, following the success of this reminder strategy in the original research on face-to-face consultation (Marsh & Roche, 1993).

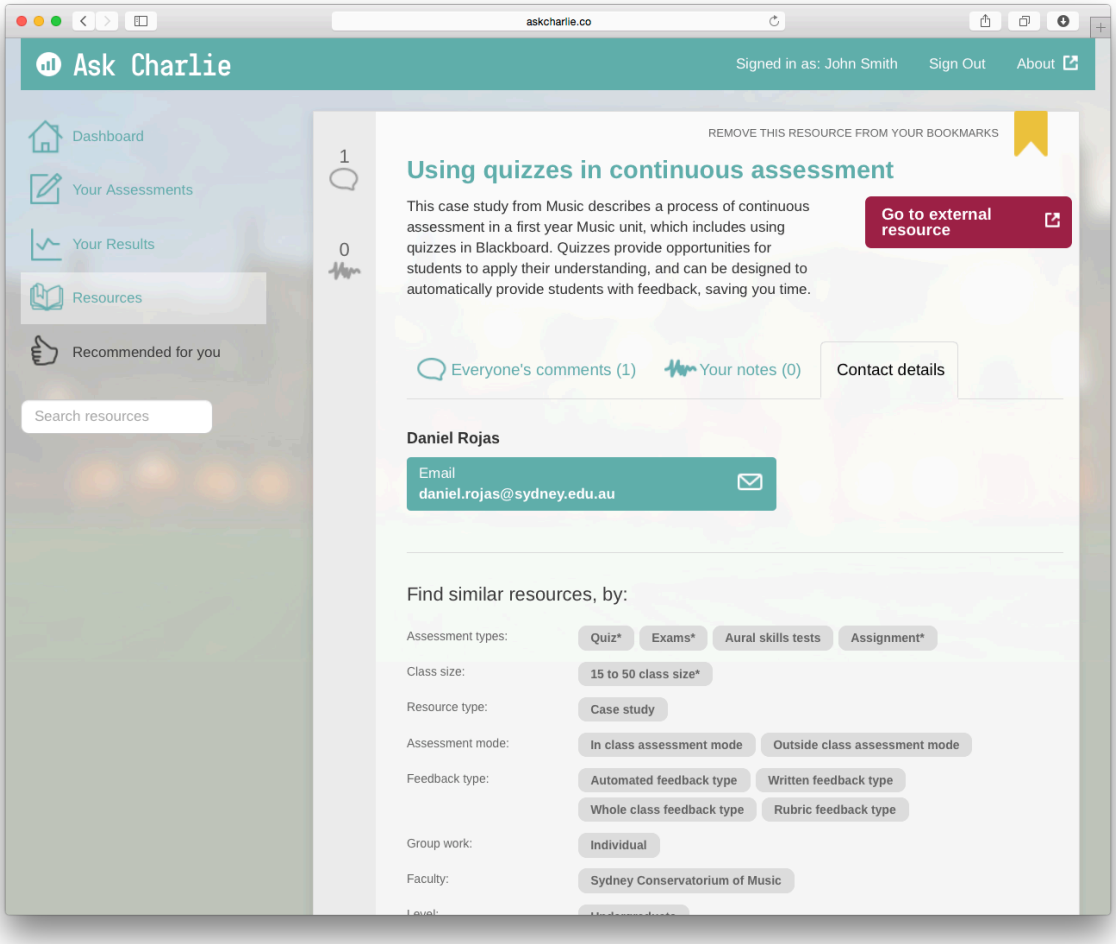


Figure 2. Contact details are provided for resources, where available, allowing website users to seek advice and/or arrange informal conversations, from which they can learn about teaching. Here, the resource describes a case study from Music, and the email contact of the academic, who was interviewed for the case study, is listed on the resource page.

Project Team

Dr Martin Tomitsch, MSc MSocEcSc PhD GradDipEdStud, is a Senior Lecturer in the Faculty of Architecture, Design and Planning, The University of Sydney and Director of the Design Computing program. He has expertise in informatics, human-computer interaction and interaction design, which includes user-centred design methodologies and web application development. His responsibilities included overall management of the project; supervising the Website Designer; managing completion of the final report; and reporting to the OLT.

Dr Jen Scott Curwood, BA BS MS PhD, is a Senior Lecturer in the Faculty of Education and Social Work, The University of Sydney. She has expertise in the learning sciences, educational technology and professional development. Her responsibilities included identifying and developing resources and case studies for the mobile website, managing the development of the video interviews with academics, and analysing qualitative data.

Dr Kate Thomson, BPsych(Hons) MIH PhD GradCertEdStud is a Lecturer in the Faculty of Health Sciences, The University of Sydney. She recently completed her doctoral thesis on academics' informal conversations on the topic of teaching in a research-intensive university, with a focus on how academics learn about teaching through conversation with their colleagues. She has previously been one of the academics responsible for the University's SET system. Her responsibilities included organising the focus groups, interviewing academics, and analysing qualitative data.

Dr Graham Hendry, BA(Hons) PhD GradDipEdStud, is a Senior Lecturer in the Institute for Teaching and Learning, The University of Sydney. He has expertise in teaching foundational and award degree academic staff professional development programs. His responsibilities included identifying and developing resources and case studies for the mobile website, and recruiting and interviewing academics, and analysing qualitative data.

Reference Group

To ensure that the project outcomes and materials took into account different institutional contexts and that they can be applied in those contexts, Professor Judy Kay, Computer Human Adapted Interaction Research Group, Professor Peter Reimann, Centre for Research on Computer Supported Learning and Cognition, and Professor Keith Trigwell, Institute for Teaching and Learning, University of Sydney; and Dr Maree Gosper, Macquarie University, offered their support as reference group members. The reference group was consulted at critical stages of this one-year project. It is the aim to continue to involve the reference group members in future grant applications that will build on this Seed Project.

Chapter 2: Project Context

Student Evaluation of Teaching at The University of Sydney

The university's quality assurance of teaching policies and processes are aligned with national systems for assuring the quality of teaching and learning. The student evaluation of teaching (SET) tools (including the USE) are based on a common underlying student-centred model of teaching and learning. The tools prioritise data on students' perceptions of their learning experience and are research-based. This data is therefore helpful in improving the student learning experience and hence student learning outcomes. Even though different tools are used at different levels, for different purposes, the commonality of the underlying theoretical perspective on teaching and learning and clear articulation between the tools ensures:

1. That improvement efforts at different levels and in different parts of the university, are aligned and strategic; and

2. That improvements at local faculty and institutional levels will be reflected in improvements at higher levels and can be recognised and rewarded.

The SET surveys system is managed and administered by a central unit, the Institute for Teaching and Learning (ITL). In addition to the development, administration, data entry, analysis and reporting of the standard USE survey, the ITL supports staff and faculties to interpret and respond to survey data, for example, to inform curriculum review.

In its current form, the *Ask Charlie* website focused on data from one of the SET tools, the Unit of Study Evaluation (USE). The current surveys system was endorsed by the University's Academic Board in May 2001, and there is USE data available from Semester 1, 2001. Some faculties have their students complete a USE for every unit every semester, the minimum for other faculties is to have the USE completed once every three years. The USE reports for individual units can be compared from semester to semester, and aggregated to program and faculty levels. The USE is designed to support unit coordinators in enhancing the quality of student learning in units of study and also to support faculties in recognising the contribution of outstanding units of study to the overall quality of teaching and learning in the faculty.

Unit of study coordinators are able to choose whether they would like to collect feedback from their students using paper-based forms (Figure 3) or online surveys. Reports are returned to unit of study coordinators and Faculties in the form of PDF reports (Figure 4). At the time when this project commenced, the majority of USE surveys were completed on paper, since the online survey requires students to have access to a desktop computer, which may result in lower participation rates. Consequently, the current version of *Ask*

Charlie only displays the numerical data collected through the USE surveys, since written feedback was not available in digital form for the majority of units of study.

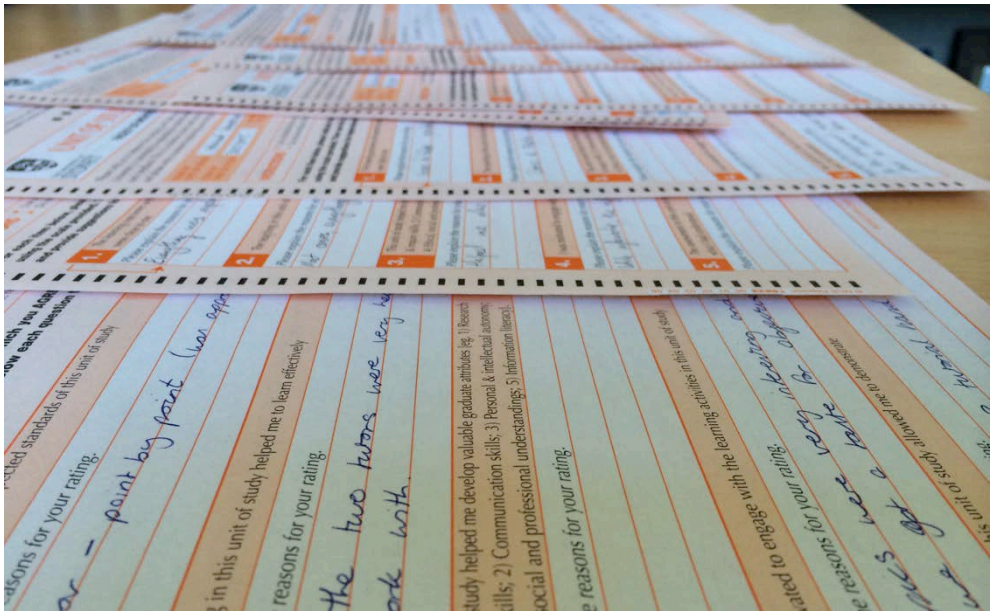
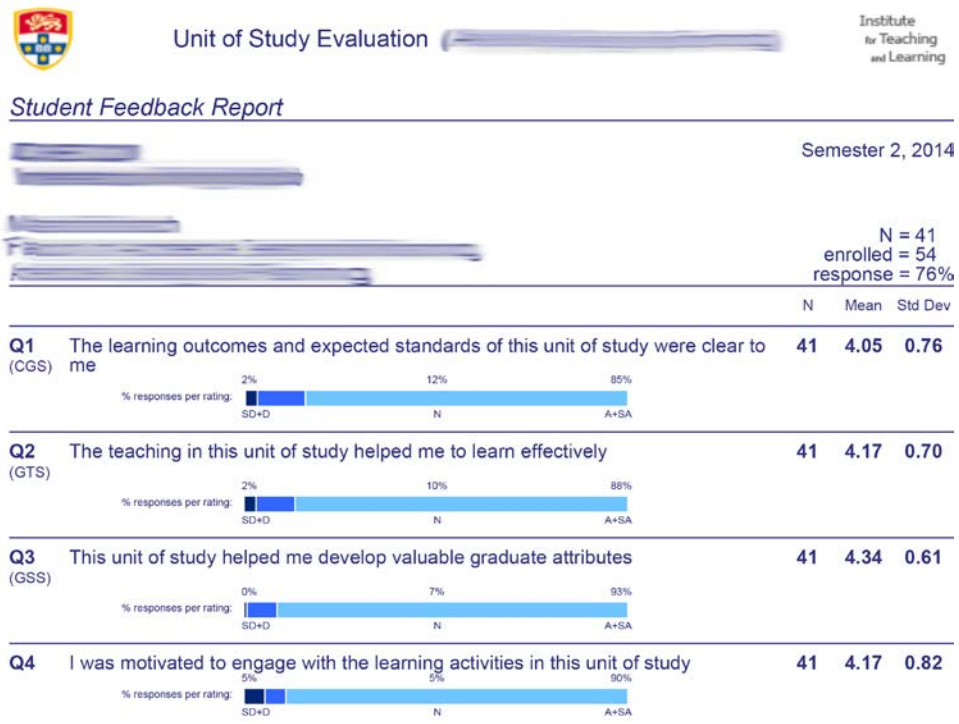


Figure 3. Paper-based Unit of Study Evaluation (USE) forms used at the University of Sydney at the time of writing to collect feedback from students.



Unit of Study Evaluation [redacted]

Institute for Teaching and Learning

Student Feedback Report

[redacted]

Semester 2, 2014

[redacted]

N = 41
enrolled = 54
response = 76%

		N	Mean	Std Dev
Q1 (CGS)	The learning outcomes and expected standards of this unit of study were clear to me	41	4.05	0.76
	% responses per rating: SD+D 2% N 12% A+SA 85%			
Q2 (GTS)	The teaching in this unit of study helped me to learn effectively	41	4.17	0.70
	% responses per rating: SD+D 2% N 10% A+SA 88%			
Q3 (GSS)	This unit of study helped me develop valuable graduate attributes	41	4.34	0.61
	% responses per rating: SD+D 0% N 7% A+SA 93%			
Q4	I was motivated to engage with the learning activities in this unit of study	41	4.17	0.82
	% responses per rating: SD+D 5% N 5% A+SA 90%			

Figure 4. Student feedback report generated from the USE data, as it is currently provided to unit of study coordinators and Faculties at The University of Sydney.

The USE consists of a standard survey of eight items and the survey is customisable at faculty level by the addition of four, faculty-designated items if requested (for example, items on feedback, course materials, and online support). The development of these faculty

items is the responsibility of the Faculty's Associate Dean Learning and Teaching. Faculties usually decide these items for the full period of the three-year unit of study evaluation cycle specified in the policy. The standard items reflect a student-centred approach to teaching and learning and are derived from the factor scales of the program/course level surveys. The survey gathers students' numerical ratings and explanatory comments for each item. Survey items similar to USE items are used across the higher education sector. For example, at Macquarie University, the Learner Experience of Unit survey includes several items on assessment for learning.

During 2013 and 2014, while this project was ongoing, the ITL began to undertake major revisions to the surveys system used at The University of Sydney, with plans to implement changes in 2015. Those changes did not affect the project and the trial completed as part of the project. However, the changes will support future enhancements of *Ask Charlie*, as the new survey system will allow academics to download their SET data as comma-separated value (CSV) files. This means that in future versions, academics would be able to import their SET data directly into *Ask Charlie* themselves, making it easier for academics to start using *Ask Charlie* as a professional development resource.

Research on Student Evaluation of Teaching

Data collection through SET is only one part of the overall strategy for assuring and enhancing the quality of teaching and learning in higher education. Despite a belief amongst students and academics that SET can be "useful and informative", feedback may not be taken seriously by some academics (Richardson, 2005, p. 410). Academics may not use SET feedback effectively if they perceive there to be no incentive for engaging with SET to improve their teaching, for example because their university does not reward this behaviour (Kember, Leung, & Kwan, 2002). In addition to recognition and reward structures, Richardson (2005) argued that ownership and publication of feedback can affect academics' engagement with SET data. Arthur (2009) identifies the relevance of feedback, ability to interpret results, and emotional reactions, as influencing the way in which lecturers respond to and act on SET reports. With respect to negative feedback, lecturers' actions related to their perceptions of whether they could facilitate change (for example, to assessment) and whether the feedback related to themselves or their students (for example, expectations) (Arthur, 2009). There is evidence that SET accompanied by consultation on how to interpret and respond to feedback can lead to long-term change and improved SET results (Marsh & Roche, 1993).

Chapter 3: Approach and Method

This project draws on design-based research methods (Barab & Squire, 2004; Design-Based Research Collective, 2003), which focus on continuous cycles of design, enactment, analysis, and redesign within education. Rather than concentrating exclusively on the design process or the educational artefact, design-based research aims to advance theoretical understandings of teaching and learning. This project examined early-career academics' experiences of interpreting SET results and modifying their pedagogy change over time and through engagement with the mobile website. Applying design-based research methods to this project involved:

- Thematic analysis of qualitative data from interviews and focus groups on (a) the perceived ease with which academics can act on resources and recommendations provided by the website; and (b) academics' beliefs about teaching and assessment;
- Analysis of survey data about academics' self-reported benefits of using the mobile website, and changes in their assessment practices and beliefs; compared to their use of other sources of support, such as, informal conversations with colleagues, one-off workshops, and formal programs.

Ethics approval to conduct this project was received from The University of Sydney Human Research Ethics Committee (HREC). The approved HREC protocol is attached as appendix with this report.

Project Foundations

The project combines and builds on existing knowledge from three areas:
Firstly, it draws on selected data from standardised SET or 'unit of study' evaluation (USE) surveys at The University of Sydney (Barrie, Ginns, & Prosser, 2005). In particular, the website and the resources were constructed around the USE item on the capacity of assessment to support students' learning. This item was selected since constructive feedback and clear learning outcomes are key indicators of quality assessment (Chalmers, 2007).

Secondly, the project builds on evidence-based resources on assessment. It harnesses existing digital 'best practice assessment' case studies that apply The University of Sydney's student-focused assessment for learning principles.

Thirdly, the website is built using open web technologies to ensure that (a) the mobile website can be easily updated and shared, and (b) further development and support is cost-effective.

Project Phases

The first phase of the project (May-June 2014) focused on the design and development of the mobile website following an iterative, user-centred design process to ensure its usefulness and acceptance to academics. Requirements for the website were collected

through two focus groups. Early versions of the website were tested in subsequent three focus groups (with different academics). This iterative prototype testing with a small number of users allowed for the elimination of any usability issues, ensuring that the website addresses the target audience's needs, and provided opportunities for collecting qualitative feedback. The first phase also involved the production of short video testimonials with academics and students. Academics were chosen and invited to participate in the video testimonials based on their high student ratings for assessment in their USE feedback.

In the second phase of the project (July-November 2014) the mobile website was made available online and (in accordance with the approved HREC protocol) academics from The University of Sydney were invited to participate in a one-semester evaluation of the website. This phase involved a survey to collect background information about volunteers and their familiarity with mobile technology.

The third phase (November-December 2014) involved interviews with academics, who trialled the mobile website in Phase 2. All participants from Phase 2, who agreed to be contacted for follow-up interviews, received a short email to invite them for the interview. The interviews allowed us to collect in-depth qualitative data about the usefulness and use of the mobile website and how academics used it in their teaching.

The fourth phase (January 2014) was dedicated to disseminating the results of the project in the form of a project website, a final report, and a journal publication. The video testimonials produced during Phase 1 were also made available via a dedicated Vimeo account (https://vimeo.com/askcharlie), in order to make them accessible outside the mobile website.

Methodology

For the implementation of our project, we followed a design-based research methodology. Design-based research posits "synergistic relationships among researching, designing, and engineering" (Wang & Hannafin, 2005, p. 5). These processes involve participant collaboration as well as iterative design and implementation in order to advance educational theories and practices. Rather than simply demonstrating how a particular design works, researchers must generate evidence-based claims related to learning (Barab & Squire, 2004). In this project, we considered how academics engage in professional development and designed a mobile website for supporting their professional learning from their student evaluation of teaching (SET) results.

Design-based research often involves artefacts, which are "policies, programs, or pedagogical tools that individuals employ to promote, evaluate, or understand learning" (Halverson et al., 2010, p. 172). In order to build an educational artefact, it is critical to understand users' beliefs, practices, and needs. We conceptualised *Ask Charlie* as an artefact and used the design framework as a way to understand how academics, as both real and potential users of *Ask Charlie*, participate in formal and informal professional development, engage in assessment, and learn from SET results.

Participants

A total of 15 academics and 2 students participated in the Phase 1 focus groups and interviews. They represented disciplines across the Faculty of Health Sciences, Sydney Medical School, the Faculty of Architecture, Design, and Planning, and Sydney Conservatorium of Music. Their roles ranged from academic appointments of Associate Lecturer, Lecturer, Senior Lecturer, to Educational Designer, and Research Fellow.

Forty-eight academics volunteered to trial the application during Semester 2, 2014. They received a personalised user account, with access to their USE data. Seventeen from this group of trial participants completed the online survey, and five participated in the Phase 3 exit interviews. Survey and interview participants were from a variety of faculties and discipline backgrounds including Health Sciences, Medicine, Arts and Social Sciences, and Architecture, Design, and Planning.

An overview of all participants involved across the three phases of the project and the various research methods within each phase is provided in Table 1.

Table 1. Overview of research methods and participants across the three project phases.

Phase	Data Source	Number of Participants	Faculty
Phase 1	In-depth video interviews	5 academics and 2 students	Arts and Social Sciences, Education and Social Work, Dentistry, Health Sciences, Science
	Focus group evaluations of initial prototype	6	Architecture, Design and Planning, Health Sciences, Medicine, Music
	Individual evaluations of initial prototype	4	Architecture, Design and Planning, Health Sciences
Phase 2	Survey	17	Agriculture and Environment, Architecture, Design and Planning, Arts and Social Sciences, Education and Social Work, Health Sciences, Medicine
	Mobile website trial	48	Arts and Social Sciences, Architecture, Design and Planning, Education and Social Work, Engineering and Information Technologies, Health Sciences, Medicine, Pharmacy
Phase 3	Exit interviews	5	Architecture, Design and Planning, Health Sciences, Medicine

Data analysis

Design-based research involves continuous cycles of design, enactment, analysis, and redesign (Barab & Squire, 2004; Design-Based Research Collective, 2003). In order to structure our analysis of the multiple data sources, we used the design framework (Halverson, et al., 2010). The design framework focuses on the construction and evaluation of educational artefacts (Halverson, 2004). These artefacts can take many forms, such as government policies, educational programs, lesson plans, and digital tools, such as *Ask Charlie*.

When designers build artefacts, they include features that they believe will positively influence the way that users think and work. Artefacts, then, are designed for specific purposes. Artefact features reflect, support, and potentially prescribe the intended use of the artefact. While designers intentionally build features into artefacts, they cannot fully predict whether these will be taken up as affordances by users. Affordances are what users see as the positive features of an artefact, which may or may not be those intended by the designer.

The design framework metarepresentation (see Figure 5) displays a triangular educational artefact at the centre. The features and affordances of the artefact are placed within the triangle. At the left, outside of the artefact triangle, are the intentions, which inform the creation of an artefact. For instance, an intention of *Ask Charlie* was to increase academics' knowledge of assessment practices. Designers' intentions influence the features that are created for an artefact. Since both intentions and features are often generated by designers who are not the end-users of an artefact, the features that the designers intend to be the primary ones may or may not be the ones that are most used.

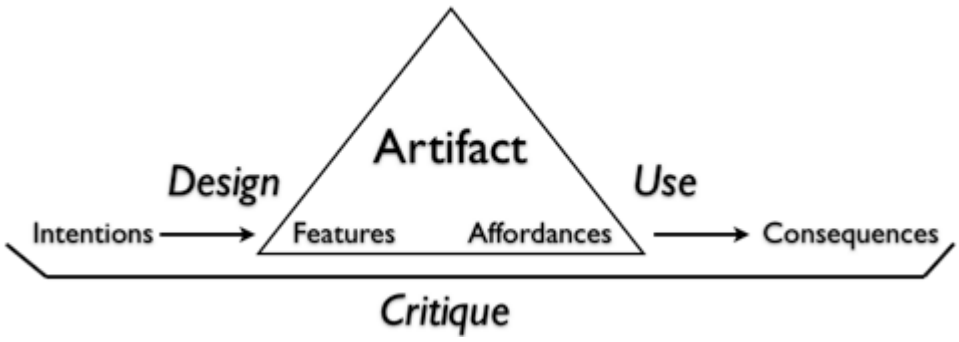


Figure 5. Visual representation of the design framework.

Located at the right base, outside of the artefact triangle, are the consequences of the design process. Consequences are the outcomes of the design. In examining the consequences, designers evaluate what features of the artefact were actually taken up as affordances. The outcomes of the design can be evaluated to determine how effective a

particular artefact is meeting the original design intentions. Future designs might then be undertaken based on the analysis of these consequences.

Lastly, the critical perspective underlies the entire design framework. By utilising the critical perspective, it is possible to examine how designs are created and utilised within particular social, historical, and political contexts. This perspective allows designers to explore how their proximal or distal position in relation to an artefact can significantly impact the design process and the potential success of implementation.

Chapter 4: Findings and Outputs

The findings in this chapter are structured in four sections: (1) insights derived from our grounding activities to identify requirements for the mobile website, (2) findings from focus group evaluations of the first iteration of the mobile website, (3) findings from the semester-long trial of the mobile website with academics at The University of Sydney, and (4) an overview of the features available in *Ask Charlie*.

Although, the project proposal focused on early-career academics, we included academics at all stages of their career in our research for two reasons: First, the input from more senior academics was in particular valuable for developing a better understanding of current practices around SETs. Second, we designed *Ask Charlie* as a tool that could be used by academics at all stages of their career. Involving a range of academics from different levels in the evaluation studies therefore allowed us to gain insight into the usefulness of *Ask Charlie* as professional development tool for early-career as well as mid/senior-career academics.

Grounding: Gaining insight into academics' knowledge of instructional design, assessment, and student feedback

Some of the findings reported in this section reflect findings from previous studies. We also considered those studies during our own background research. However, they are not included here, as this section specifically focuses on the grounding process involving gathering of data from prospective users. The findings here are therefore presented and structured as insights that then informed the design of *Ask Charlie*. We published a more thorough analysis of the data from this phase and their discussion in relation to previous work in a separate conference paper:

Thomson, K., Curwood, J.S., Tomitsch, M. (2016). Participatory professional development: designing a mobile website that links student feedback with best practice teaching resources. In Proceedings of the 39th annual conference of the Higher Education research and Development Society of Australasia (HERDSA), 4-7 July 2016, Fremantle, WA.

Instructional design across disciplines

Since one of our aims was to engage academics with their SET data on assessment, we first needed to investigate academics' beliefs and practices related to instructional design. As a design-based study, we built on previous case studies of academics at The University of Sydney and conducted in-depth interviews and focus groups with academics as well as undergraduate students. Five participants took part in two focus groups, representing disciplines across the Faculty of Health Sciences, Sydney Medical School, and Sydney Conservatorium of Music. The in-depth interviews included five academics from a variety of disciplines (Arts and Social Sciences, Health Sciences, Education, Science, and Dentistry), with varied experiences (from Lecturer to Professor), and with recognised teaching

achievements (high SET results, teaching awards, etc.) as well as two undergraduate students from Education and Arts.

The in-depth interview questions probed academics' backgrounds, assessment practices, approach to instructional design, and interpretation of SET results, such as: How did you develop your assessment? What has been the benefit for you of designing and organising your assessments in this way? Why do you think that students value the assessment in your unit? What strategy do you find saves you the most time in giving students feedback on their work? How do you interpret unit of study evaluations? Do you use these to improve on your teaching and support students' learning?

These in-depth interviews were important in two key ways: First, they offered insight into academics' beliefs about the role of assessment and their practices related to instructional design as well as how they engage with SET results and use student feedback to inform their teaching. Second, the interviews were professionally video-recorded and edited, resulting in case study testimonials available to *Ask Charlie* users within the online resource collection.

A thematic analysis of the focus group and interview data revealed important insights into how academics conceptualise, design, and implement assessments as well as how they engage with and interpret SET results. Academics and students emphasised that the purpose of assessment is for students to demonstrate their disciplinary learning. Most academics also noted that assessment is a means to prepare students for their future professions; here, academics emphasised the use of real-world scenarios and authentic data in relation to assessment. A lecturer from the Faculty of Health Sciences stated, "The tasks that I use certainly not only help the students develop knowledge, but also practical skills in problem solving clinical cases and learning how to work collaboratively with one another." Several academics also noted how their assessments reflected professional standards and ensured that their programs were accredited by national organisations, such as the Speech Pathology Association of Australia and the Australian Institute for Teaching and School Leadership.

Formative and summative assessment

Academics across multiple disciplines stressed the importance of varied, incremental, and formative assessment. Within a single unit, for example, assessment tasks may be both traditional (such as essays, exams, or research projects) as well as creative (such as digital stories). By having variety within and across assessment tasks, students had multiple opportunities to demonstrate their learning. Incremental approaches to assessment also offered students valuable guidance. One student described how an Arts unit included an annotated bibliography as part of a research paper; she appreciated the time tutors allocated to explicitly discussing expectations for the assessment task and guiding students in developing their topics.

Rather than having a limited number of high-stakes summative assessments, academics valued formative assessment that involved low-risk tasks and timely feedback. This was accomplished in several ways: providing time for peer assessment in tutorials, giving general feedback (based on the cohort), and giving specific feedback (tailored to the student) on a regular basis. A senior lecturer from Education noted how he regularly reminds students in lectures about how, when, and why they are receiving feedback, so they are not under the mistaken impression that only individualised feedback is valuable. Lecturers also considered their own time management in relation to their workload as well as in relation to giving students feedback that could then inform their subsequent assessments. One Science professor found that timely, effective, and detailed feedback substantially cut down on students' follow-up questions and enquiries.

Several academics described how detailed marking rubrics are instrumental to effective assessment. Specifically, marking rubrics allow them to: clearly communicate expectations and assessment requirements to students; facilitate the marking process and support workload management; clarify standards to markers and students; and result in more fair and accurate marks. Two academics discussed using online assessment in order to expedite and standardise the marking process; one emphasised how this was critical in large lectures in order to identify struggling students and save time with unit coordination. Only one academic specifically noted other factors that shaped assessment, such as funding for lab space and the lack of markers' relative experience.

Iteration and reflection

Data analysis of the interviews revealed that academics valued instructional design that is iterative and reflective. A lecturer in the Faculty of Arts, for instance, stated, "None of our courses should ever be fossils. They should all be courses that we're going on developing and we're going on thinking about, particularly the relationship between the assessment and the content of the course." Many academics employed a backward mapping approach and ask themselves: What are the end goals for student learning? How can they demonstrate learning within assessment tasks? One senior lecturer in the Faculty of Education and Social Work identified a specific problem in his units with students completing the assigned readings. He then designed an assessment task that involved students working collaboratively to facilitate a discussion on the readings; not only did this address the issue, it also offered students an opportunity to engage in peer teaching and to model future professional practices.

Along with an iterative approach to instructional design, academics also use a variety of sources to engage in reflection. In addition to SET results, several academics discussed designing their own surveys, holding focus groups, discussing teaching practices with colleagues, and taking detailed notes throughout the semester. Academics' assessment practices often changed based on their critical reflection in conjunction with student feedback.

Learning from SET results and other resources

By conducting focus groups and interviews with academics across multiple disciplines, we were able to gain a deeper understanding of their beliefs and practices related to assessment. In the university's SET, assessment is the focus of one of the key questions and often comes into play in how students answer other questions related to learning and overall satisfaction within the unit. Since *Ask Charlie*'s aim was to help academics interpret their SETs and improve their teaching, our interviews also asked academics about how they currently review, interpret and respond to their SET results.

As previously noted, SET results are one of multiple sources that academics draw on to understand students' engagement, achievement, and enjoyment within a particular unit. However, it is also important to recognise that SETs are formal evaluations and as such, are highly valued within the university. Data analysis suggests that academics look at SET results at one point in time, to determine students' experiences within a particular unit, as well as over time, to see how their instructional design and changes to assessment practices have influenced SET results over multiple semesters.

SET results offer both quantitative and qualitative data on the student experience. One academic suggested that the former gives her a general understanding while the latter offers specific feedback related to the unit's content, pedagogy, and assessment. Another academic found that his SET results indicated that students prefer highly structured and scaffolded tasks; in turn, these increased students' confidence and engagement. For academics in the study, SET results can be useful in identifying particular areas of weakness, which can then be targeted in subsequent semesters.

The pre-trial survey revealed that just over half of the respondents (56 per cent, 10 of 18 participants) had made changes to their teaching and/or assessment since the previous year. Of those who made changes the majority (78 per cent, 14 participants) said that they use their SET feedback. Respondents also said that other key resources that they find useful in developing their teaching are experienced colleagues (89 per cent, 16 participants) and journal articles on university teaching (74 per cent, 13 participants).

The academics used a wide range of assessments across the units of study that they taught in, including exams, essays, case studies, project proposals, quizzes, article reviews and posters. The changes that academics made to their assessment were generally focused on improving students' experience, e.g., "[I made changes] to make the assignment more engaging for students by giving choice"; "[because of student] confusion over instructions, [I] attempt[ed] to improve outcomes for all students [by] refin[ing the] focus of assessment to target [its] purpose more successfully". Some respondents from the survey also mentioned that they made changes to satisfy curriculum and/or accreditation requirements.

Familiarity with and use of mobile applications

The pre-trial survey asked participants about their familiarity with mobile applications and whether they use mobile applications in their teaching practice. The majority of survey respondents (83 per cent, 15 of 18 participants) stated that they were familiar with apps and 78 per cent (14 participants) regularly used them on mobile and other devices. However only 39 per cent (7 participants) of the respondents reported using apps in their work as a university teacher.

First iteration: Projected use cases and feedback on the mobile website prototype

The interviews and surveys of academics were instrumental in providing us with insight into how potential users of *Ask Charlie* engage in instructional design, create assessments, and interpret SET results. Drawing on the design framework, the data suggested that academics may engage with the mobile website with specific intentions, such as:

1. Find targeted resources to improve the design and implementation of assessments, both generally and within certain disciplines;
2. Connect with other academics to share experiences and examples because of their reported preference for using experienced colleagues in the past;
3. Understand SET results, including in particular semesters and over time.

The data from the first set of Phase 1 focus groups and interviews with academics was used to inform the design of the first iteration of *Ask Charlie*. A second set of focus groups and interviews was conducted to collect additional data about academics current use of SET results, and to evaluate the first iteration of *Ask Charlie*.

For example, emails sent to academics were identified as a good way to remind academics about the website, and provide updates about relevant resources as appropriate. It was agreed that the tone of these emails was important to ensure they prompted access to the website, but did not make users feel guilty for not having accessed the website or irritated by the contact. During Phase 3 follow-up interviews, academics reported that the emails achieved their intended aim. Phase 1 feedback was also used to make simple design changes, such as re-labelling of a button from ‘resources’ to ‘view recommended resources’ to make the purpose of interactive elements clearer to first time users. One of the issues identified during Phase 1, and reinforced during Phase 3, was the lack of time available to academics, particularly for developing their teaching. One of the changes made to encourage users to quickly understand and engage with the resources, was to revise the titles of the case studies and other resources. This meant that the focus for the resources became the content (i.e. topic area or teaching practice) with the discipline as a secondary focus. For example, one resource had previously been named, “A case study in discipline A”, and was changed to, “Group work for large classes in discipline A”.

Overall, academics were positive about the website as a source of support for their teaching development. The website was seen as an opportunity to make their teaching more 'standardised' or similar to colleagues' practice. The identification of personalised results and resources were appreciated, and this encouraged users to engage with the website because they saw it as relevant. In a context where academics describe often feeling left alone to develop their teaching, any support is valued. One staff member noted that the feeling of isolation is exacerbated "if you're a part timer and when you do come in to work there's no-one available to ask a question, either in person or via email", so for them, the website addressed this issue.

There was general agreement that academics would recommend the website to their colleagues – early-career or otherwise, especially at times during the year when they are thinking about teaching. The website was seen not just as useful for planning, but had the potential to improve the efficiency of planning. It was seen as a support tool to help academics to identify a focus for improvement and provide direction and resources for that focus, "rather than staff wondering what to do next". In addition to the barrier of time for teaching, a few participants noted that some academics are more interested in teaching than others, so while the website has the potential to be useful to everyone, there are some people who would be more interested in using it to develop their teaching than others. Furthermore, a consequence of using USE data means that academics who don't have a USE or a unit of study will need guidance to help them benefit from the website's resources, and those staff who only have one set of USE data may also need some direction as to where they should focus.

Second iteration: Feedback from the semester-long trial

Access, navigation, and use of the mobile website

Fortunately, having a responsive website allowed academics to use the device and browser they were most comfortable or familiar with. For the most part that was a desktop computer, because this was what they usually used for thinking about and planning their teaching. Requiring academics to use a device they hadn't used before may have represented a potential barrier to accessing the mobile website. As noted in the previous section, emails to academics served to remind staff that the website existed, and encouraged them to access it. This led academics to view or skim the suggested resources, and to engage with the content, likely for varying periods of time.

A key issue for academics who work in a research-intensive context is time for teaching, and timing their access to the website during peak workload periods. All academics described an interest in using the mobile website more than they had been able to. They didn't identify aspects of the website as a barrier, rather their lack of time for teaching and reflection, and timing their access. During Phase 3 interviews (which occurred after the semester-long trial had finished, at the end of a teaching semester), academics mentioned that they were to

shortly return to a planning phase and would be interested in thinking more about their teaching, rather than focusing on implementing their plan for the semester. For example, at times during the semester, they were in the midst of marking, and unable to do anything else – they did not have the time for exploring a website and mulling over ideas. Insufficient time also led some users to describe their engagement with the website as all over the place, as though they were ice-skating on the surface, rather than being able to explore key resources deeply.

In addition to being a barrier, the timing of some workload priorities encouraged access to the website. For one academic, her department's priorities facilitated her engagement with the website. Her department head was interested in their USE results because they had received low rankings from students in a previous round, which increased her motivation to identify and implement changes to teaching practice. Having access to the mobile website meant that she could easily produce the data for the department head, and show where the trends were over time for her units of study.

Academics described the navigation of the mobile website as easier than expected, and not confusing. Some thought they were provided direction on where they needed to go, others didn't know what to do when they were in the site. The directions for using the site and the language used within the site were described as simple, so that staff could use the website well, even the first time. The design and colours of the mobile website was assessed as being liked and not irritating to users. One academic with poor eyesight described the website as simple, and not too busy, and therefore suitable for them. There was some negative feedback from two academics about the background, which contained a picture that was deliberately out of focus – reflecting a current trend in web design – which they thought was confusing and distracting.

Presentation and interpretation of USE data

The first screen seen by academics when they accessed the website was their USE results (with a graph). This was seen as useful, especially if they liked what the results suggested about their teaching, either the results were improving over time, or the results were positive (i.e., high satisfaction with the unit of study). This initial positive feedback may have helped to encourage further engagement with the rest of the website. A cautionary note is that if the results were seen as negative, while some staff may find that motivating, others may disengage with the website for teaching development.

A key feature of the mobile website is that it makes it easier to see trends across USE results and make comparisons from semester to semester, this is data that academics didn't have access to before. This feature helped academics to interpret their results, which was something that academics identified as challenging in Phase 1 focus groups and was reinforced in Phase 3 interviews. The role of the website in monitoring academics' progress towards plans, and then students' responses to what they have implemented was seen as

helpful – i.e., from semester to semester the website could allow academics to determine if the changes they have made affected the responses to the questions they focused on.

One consequence of the mobile website relying on USE data, is that users' experience of the website is affected by any concerns they have with USE data. For example, two academics reported that they thought some questions were influenced by one lecturer (either positive or negative) or one technical issue, and that the USE does not cover other more important aspects of their teaching.

Value and use of personalised resources

The content of the resources was described as being of good quality, and they provided helpful ideas. However their usefulness was limited as some academics had already thought about the content provided in some of them, and for most academics, it was too difficult to make changes to their teaching a few weeks into semester (which was when they started engaging with the website). The combination of a small database of resources and the process for recommending resources meant that there were no perceivable major updates between reminder emails for some staff. If the same resources were suggested more than once, this did not encourage academics to return to the website.

Some staff struggled with how to search the database for resources or what to do next. Other academics used the search function when they had time. This was most often in relation to a specific query, such as on group work or how to be creative with assessment design.

The bookmarking feature was easy to use, made sense, was easy to find and did not require too many clicks. Academics believed resources appeared in order of relevance, and then that order was updated after bookmarking to maintain relevance, reinforcing the perception of a personalised website.

Video testimonials – drawing on the experience and expertise of colleagues

As part of this project, we produced an introductory video that introduced users to *Ask Charlie*'s key features and navigation pathways. In addition, the in-depth interviews with academics (described earlier in this chapter) were recorded, edited, and used as the basis for 40 short testimonial videos available within the *Ask Charlie* resources. We also created an introductory video that oriented users to *Ask Charlie*'s features and resources.

The testimonial videos achieved part of their intention to support teaching development. They prompted reflection by users, even though not all academics made major changes, the website did help academics to think about their teaching in relation to their USE results and the teaching of other staff. One academic started to review her own assessment in relation to the testimonials. Academics find talking to others about teaching, and listening to others talk about their teaching useful but difficult to achieve – the website simplified this by providing access to experienced academics talking about their teaching practice. This gave

users ideas for what to do in their teaching and how to solve problems. It is seen as helpful to know what others' experience of teaching is like, this may help to address the isolation of the teaching role described by some academics.

A consequence of choosing case studies in the form of testimonials as a resource meant that some academics found it difficult to take the ideas and strategies presented and apply or adapt them to their own teaching context. Although these academics suggested that the teacher who is achieving good results in their teaching cannot necessarily convey how to achieve these results to others, it may be that even if this teacher is good at communicating, that some academics will require more support than others to adapt ideas to their context.

Connect feature – extending case studies to build collegial relationships

Each of the case studies that were developed and published by the ITL prior to the commencement of this project had the contact details of the academic involved so that website users could ask questions and follow-up with this person. From the post-trial interviews, it became apparent that most academics were not aware of this feature and therefore did not end up using it. This may have been because it was not promoted or because it appeared in a separate tab beneath each case study resource, and not on the initial page. Whether they used it or not, the connect feature was seen as a useful extension of the case studies. Academics stated that they liked this feature since sometimes "you hear about a good idea and you have questions, but you have no idea who to ask". They noted the benefits of the range of settings and disciplines provided by case studies, as sometimes the best ideas come from other disciplines, and academics' own discipline is not the limit of usefulness. One of the five interviewees was not interested in connecting with colleagues based on case studies, and would have preferred real ideas from their own discipline.

Overview of the final prototype

The mobile website was developed using web technologies to ensure it could be accessed from different platforms and devices. The design was optimised for tablet use, in response to the uptake of mobile devices and their role in academic life.

The website was designed and developed in close collaboration with a design office, which included the development of the specifications and requirements. From the large list of desired features, a selection was chosen to be implemented as part of this Seed Project. The criteria for the selection of features was their contribution and value for the project and the research aims of the original Seed Project application.

SET data import

For the website used in the study during Semester 2, 2014, and the participants, who volunteered to trial the application, SET data had to be manually imported. This simplified the development process and was an economical necessity considering the short timeframe and small budget available for this ambitious project. The disadvantage of this approach,

however, is that any new SET data needs to be manually added, which can be the case if there is new SET data available for existing users, or if new users are added. However, being a seed project, this approach was chosen over spending time and resources on the development of an automated integration. Such integration can be easily added to the website in future developments. The application was developed to also allow for easy integration of other institutions and their SET data in future developments.

Administration interface

The website includes an administration interface (Appendix B – Figure 6), which can be used to add users and resources or to edit any of the existing data in the application. Only administrator users are able to access this part of the website.

Ask Charlie user interface

The design of the user interface of *Ask Charlie* was driven by the workflow of academics and their current approach to managing units of study and the associated assessments and SET results (described above).

The landing page of the website provides a step-by-step guide for how to use the application (Appendix B – Figure 7).

After logging in, the user is shown an overview of their units of study and most recent SET results, in the so-called 'Dashboard' view (Appendix B – Figure 8).

Assessments emerged as an important component of the website during the design process, since the assessment details act as filter for the list of recommended resources. The assessments were pre-populated for the units coordinated by our study participants, based on the data available in the online handbooks. A separate web crawler module was implement for this purpose, which generated a list of prepopulated fields that was edited by the project team before adding it to the website. Users are able to modify the assessments or add other types of assessment (Appendix B – Figure 9).

On the 'Your Results' page (Appendix B – Figure 10) users can view all their SET results for the units they are coordinating. The results are listed per question item. For the current version of *Ask Charlie* only quantitative results are displayed. Although academics stated they would like to see students' comments listed for each of the question items, this would have raised some technical challenges as the majority of SETs at The University of Sydney are completed on paper. Implementing a technique for digitalising the written comments would have therefore been a time-intensive task. For the objectives of the seed grant proposal, it was not essential to integrate comments.

For units where SET data from more than one semester is available, the website displays the results per question item over time, allowing users to easily compare their performance on each item from semester to semester (Appendix B – Figure 11).

For question 5 (“The assessment of this unit of study allowed me to demonstrate what I had understood”) a navigation link is displayed that provides users with one-click access to a collection recommended resources (Appendix B – Figure 12). Question 5 was chosen as outlined in the original proposal as it focuses on assessment. Consequently the resources that were added to the website focus on assessment and assessment strategies.

As described above, the recommended resources are selected using meta information about the units of study (such as class size and Faculty) as well as the particular types of assessment used in the unit (e.g. written report, exam, etc.). The resources are displayed in a list (Appendix B – Figure 13). Each list item shows:

- The title of the resource
- A short description of how the resource can be used in assessment
- The number of comments made by the user community about the resource
- The number of personal notes made for the resource
- The number of ‘matches’, i.e. how many of the filter criteria (‘tags’) the unit of study and the resource have in common, which gives an indication for how relevant the resource is
- The number of views

Users can bookmark a resource if they would like to get back to it later or click on the title of the resource to go to the resource detail page (Appendix – Figure 14). On the resource detail page, users can leave comments (visible by everyone) or personal notes (only visible to the user). They can view contact details, if available, to connect with the academic responsible for the resource. Or, they can explore other resources that are related, based on the ‘tags’, which are displayed at the end of the page. To view a resource, the user has to click on the link “Go to external resource”, which leads them to the external website hosting the resource.

Conclusions and future directions for the mobile website

Design-based research was an appropriate methodology for the iterative change process used for the development of the mobile website, as much of Phase 3 feedback aligned with feedback collected during Phase 1. An unexpected issue during the Phase 3 interviews was that some participants found it difficult to answer some of the interview questions, since they lacked in-depth knowledge of the website. When preparing the interview questions at the start of the project, our assumption was that participants would be familiar with all aspects of the website after using it for a semester. However, the challenge of time for teaching for teaching and timing of access meant that not all participants engaged deeply with the website. Many stated that they were not able to use it as much as they had wanted

to, due to lack of time. In hindsight, it would have been more appropriate to use an interview format that incorporates a stimulated recall or walk-through of the website at the end of the trial.

Time and timing

Although the project team were aware that time for teaching and timing of access were key to the website being used by academics, we misjudged the willingness and motivation of academics to engage with resources during semester. While teaching, academics would make very minor changes to what they had already planned, especially if they had large classes, where any changes can be stressful. The option to make changes is not wholly up to the academic, for example, assessment tasks cannot change after the unit of study outline has been finalised. Many spoke of the website being more useful during the design and planning phase of their teaching, this is the time between examiners' meetings for one semester and the first weeks of the next semester. This is the time when academics would be thinking about their teaching, and considering major changes. One academic used the analogy of harvesting versus planting with harvesting referring to the teaching period and planting referring to the teaching design and planning phase – and suggested the website is more useful during the planting season.

Suggested changes and additional features

For the most part, participants in the post-trial interviews found the website to be useful, and much of what we intended to achieve was achieved. This section is intended to be forward looking, with a focus on what else can be done via the website to support academics' teaching development. The mobile website users had suggestions for improvements to the website, and their feedback led the project team to develop further ideas for enhancing the website. Using the language of the design framework, this is considered critique, and is based on the use of the website in relation to the intended use.

- Integrate a note-taking feature into the mobile website. It is important that the notes be kept separate from comments on resources that were to be seen by other users and academics would need to be able to easily tell the difference. In doing this, the website could keep a record of what the lecturer thinks they did well and not so well in their teaching, and when the USE results are released, they could compare their thinking to their students' experience.

- The website could include videos of practice from lectures and tutorials. This might be one substitute for face-to-face peer observation that is desired by some users. One outcome of the feedback is evidence that not all academics have the same interests, time for teaching and learning style. If we offer a website that is intended to provide relevant support for academics, we need to remember that users learn differently, and may benefit from different kinds of resources.

- The website could create more opportunities for academics to tailor their experiences and maximise their autonomy in learning. Increasing autonomy will benefit users who prefer a flexible and responsive website, however this should be balanced with scaffolding, such as guiding questions. The addition of simple overarching resources, like a checklist for planning your teaching could help those users who prefer to have direction.

- To encourage academics to build a community around the resources, academics should have the opportunity to contribute their own resources. This could include collating resources from elsewhere and suggesting them as relevant, in addition to completely new resources developed by individual staff.

- Several academics noticed the deliberate focus on resources about assessment, specifically assessment design. They were interested in using the website to explore resources on other topics. One suggestion was for unit coordination support, such as how to manage the role, how to manage teaching teams, and working with unit coordinators to support tutors. Another suggestion was for resources targeted towards tutors, including on areas they can work on, like feedback on assessments. These resources may need to be accompanied by prompts and additional materials, as it is unlikely there will be relevant SET data available.

- One suggestion was for the website to provide access to anonymous SET data of other academics. This would be helpful for early-career academics receiving their first SET results, as having an idea of what SETs look like for other academics, provide a benchmark, and moderate the negative response to less than perfect feedback. Such a feature would also be useful for academics, who typically only see their own SET data.

- In addition to providing SET data from the USE, the website could introduce additional sources of data. For example, this could include SET data from informal focus groups with students, or feedback from colleagues. This would serve to address two issues: First, users' experiences of the website being affected by their understanding of the USE, and second, engaging users who do not have SET data, but have data that relates to their teaching.

- To make the website easier to navigate, the video introduction could provide clearer instructions for how to navigate and use the website, and the email reminders could promote specific features so that academics are aware of what they can do and achieve with the website. Two particular features that could be improved to allow for easier navigation are the search function and the connect feature.

Barriers and opportunities for increasing the value and use of the website

A key intention of the mobile website was the provision of relevant support and personalised access to resources. From the interview data we noted that the concept of relevance did not have the same meaning for all users. For example, if resources were recommended based on poor results then that might relate to something that the academic cannot affect. It is important that future versions consider different ways of recommending resources. Results from SET and other data sources could be one way of recommending resources. However, other strategies for recommending resources could include recently added resources, most popular resources, and resources that align with user-identified priorities. The emails sent to academics could feature examples of different resources based on the different strategies for recommendation

For this study, the project team chose to keep the website separate from university-supported systems. Whether further versions of the website should be integrated with systems such as Blackboard, or the university's survey portal, is a difficult decision. While integration offers advantages, some academics dislike internal systems and sites, as they are not always accessible off campus – and it can be frustrating and inconvenient to be prevented from responding to work requests. In terms of access for users, we should be careful of not inadvertently making the mobile website more difficult to access. One academic had their third university email alias (least used) as the username and password for *Ask Charlie*. Aspects like this may provide additional barriers to academics' use of the website.

Some academics reported that they could never have too many tips and tricks, and therefore the website was helpful, because it provided more of these to try. The feedback from other users suggested that our database did not align with their teaching development needs because they did not find case studies helpful. This could be addressed by surveying staff and asking them to identify resources they find useful, and what additional support would assist them to improve their teaching. One issue is that staff may be hesitant to adopt their colleagues' practices if they think it may not work or if it is not discipline-specific. In promoting the comment and connect features, we may help to make the case studies more useful to those kinds of users, as they would be evaluated by other users. Each case study resource could become more like an online recipe, where each academic comments on how they modified the original recipe, and what the outcome was for them. New users would then have the original case study and several adaptations from which to choose for their own context. This would also involve an increase in time spent within the website, something we need to encourage to build a community, and this could also help users to reflect more.

The website could be linked to other opportunities for professional development to encourage uptake and engagement by staff. Our participants were unsure if and when other users would be accessing resources and commenting on those resources. This led to

uncertainty around whether there was any point answering others' questions if some time had lapsed since the question was posted. The website could be available to staff participating in other professional development activities, and users could be notified that other groups would be accessing it during set dates and times and taking part in the discussion. For example, The University of Sydney offers a one-year Graduate Certificate in Educational Studies (Higher Education) program, and staff enrolled in the course could provide an ideal group of interested participants able to answer questions and suggest strategies for professional development.

Chapter 5: Impact, Dissemination and Evaluation

Findings from this Seed Project were presented at different venues throughout the one-year lifespan of the project:

- October 2014:
  Presentation at the Sydney Teaching Colloquium, held at The University of Sydney
  http://www.itl.usyd.edu.au/getinvolved/sydneyteachingcolloquium/2014/
  Presentation title: "Professional development for academics: Introducing a personalised app to learn from student feedback"
  Presented by: Tomitsch, M., Curwood, J.S., Thomson, K., Hendry, G., Lau, A., & Moy, L.

- November 2014:
  Presentation at the Sciences and Technologies of Learning Research Fest, held at The University of Sydney http://sydney.edu.au/research/stl/events/fests.shtml
  Presentation title: "Just Ask Charlie: Using an app to support professional learning from student feedback"
  Presented by: Thomson, K., Curwood, J.S., Tomitsch, M., & Moy, L.

- November 2014:
  Invited presentation at The University of Sydney #Edtech Talks
  http://www.itl.usyd.edu.au/getinvolved/edtech/edtech-network.htm
  Presentation title: "Ask Charlie and academic professional development"
  Presented by: Tomitsch, M., Curwood, J.S., Thomson, K., & Moy, L.

We further submitted and published two articles after the completion of the one-year project period, one of which was supported by an OLT extension grant:

- Curwood, J.S., Tomitsch, M., Thomson, K., and Hendry, G. (2015) Professional development in higher education: Designing and evaluating an interactive teaching resource portal. In: Australasian Journal of Educational Technology Volume 31, Number 5, Australasian Society for Computers in Learning in Tertiary Education, ISSN 0814-673X.

- Thomson, K., Curwood, J.S., Tomitsch, M. (2016). Participatory professional development: designing a mobile website that links student feedback with best practice teaching resources. In Proceedings of the 39th annual conference of the Higher Education research and Development Society of Australasia (HERDSA), 4-7 July 2016, Fremantle, WA.

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Appendix A

Certification by Deputy Vice-Chancellor (or equivalent)

I certify that all parts of the final report for this OLT grant/fellowship (remove as appropriate) provide an accurate representation of the implementation, impact and findings of the project, and that the report is of publishable quality.

Name: Professor Pip Pattison, DVC(Education) Date: 03/02/2015

Appendix B: *Ask Charlie* screenshots

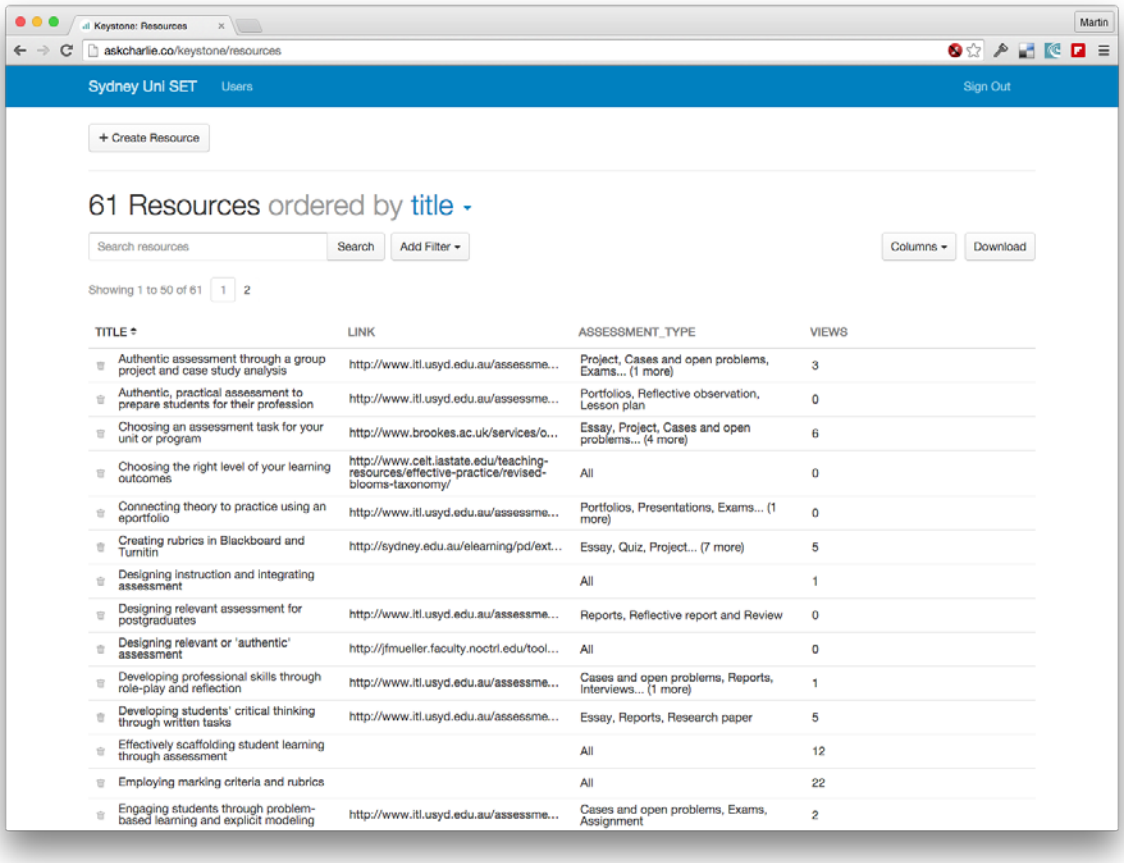

Figure 6. The administration interface for adding new data and managing the data available in the website. This screenshot shows the administration page for editing the available resources.

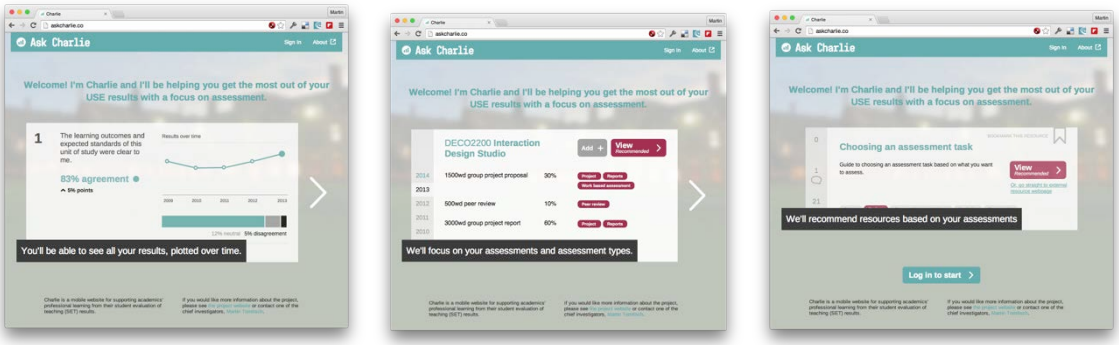

Figure 7. Welcome screen and step-by-step guide to introduce new users to the application.

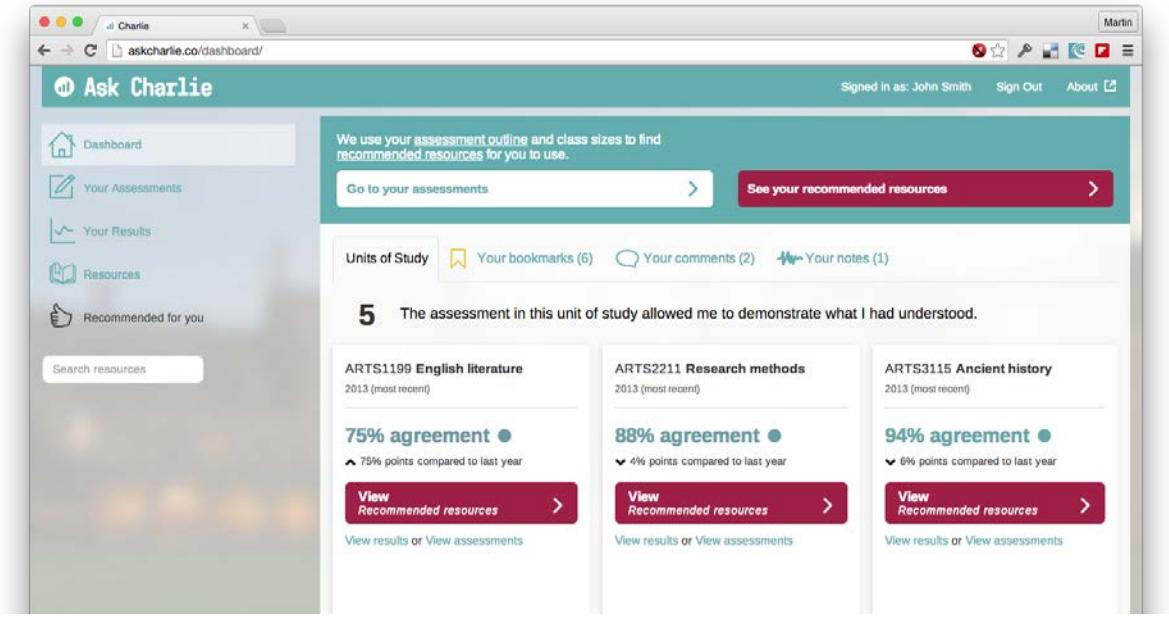

Figure 8. Dashboard view.

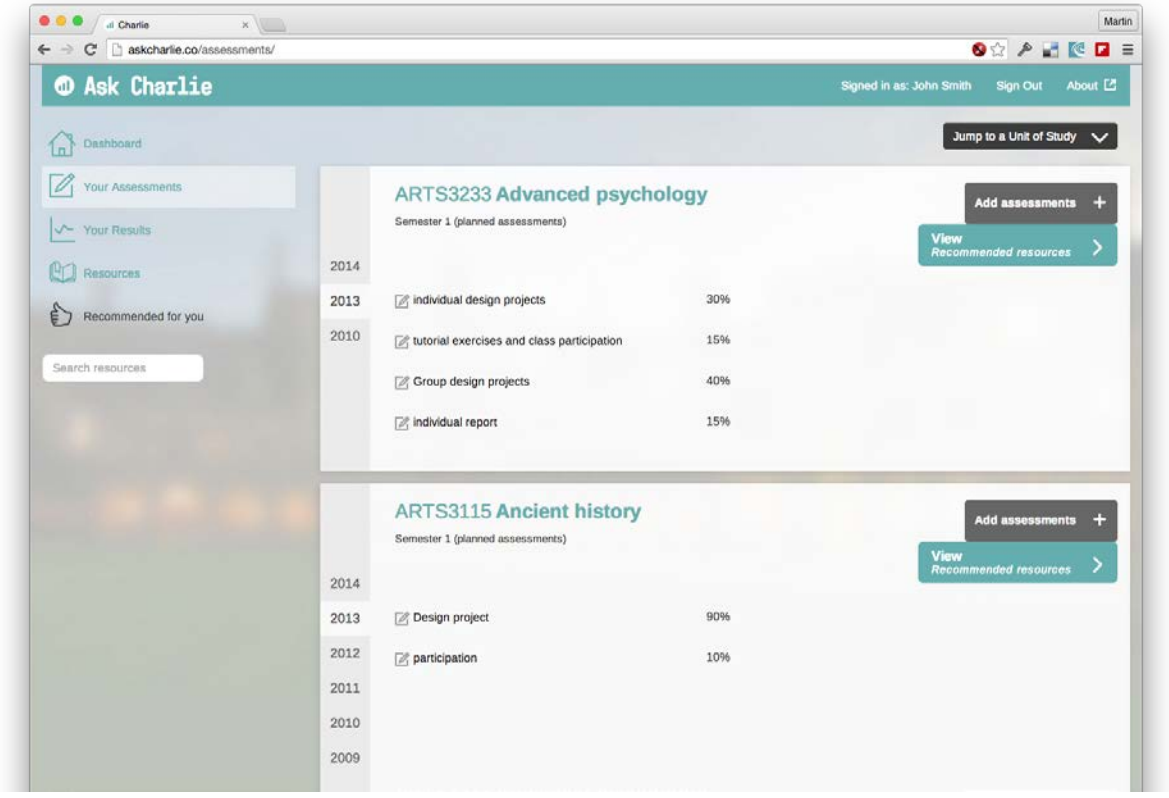

Figure 9. Assessment management view.

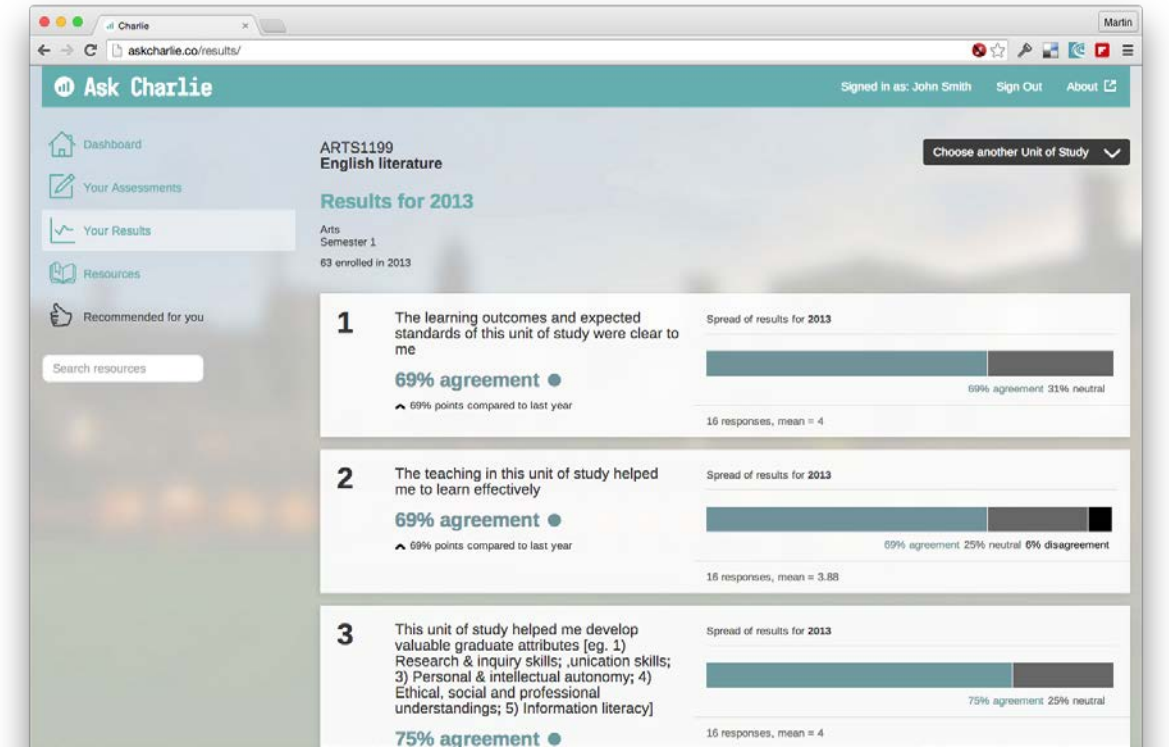

Figure 10. SET results for a unit, for which there is only one instance of SET data (i.e. from one semester) available.

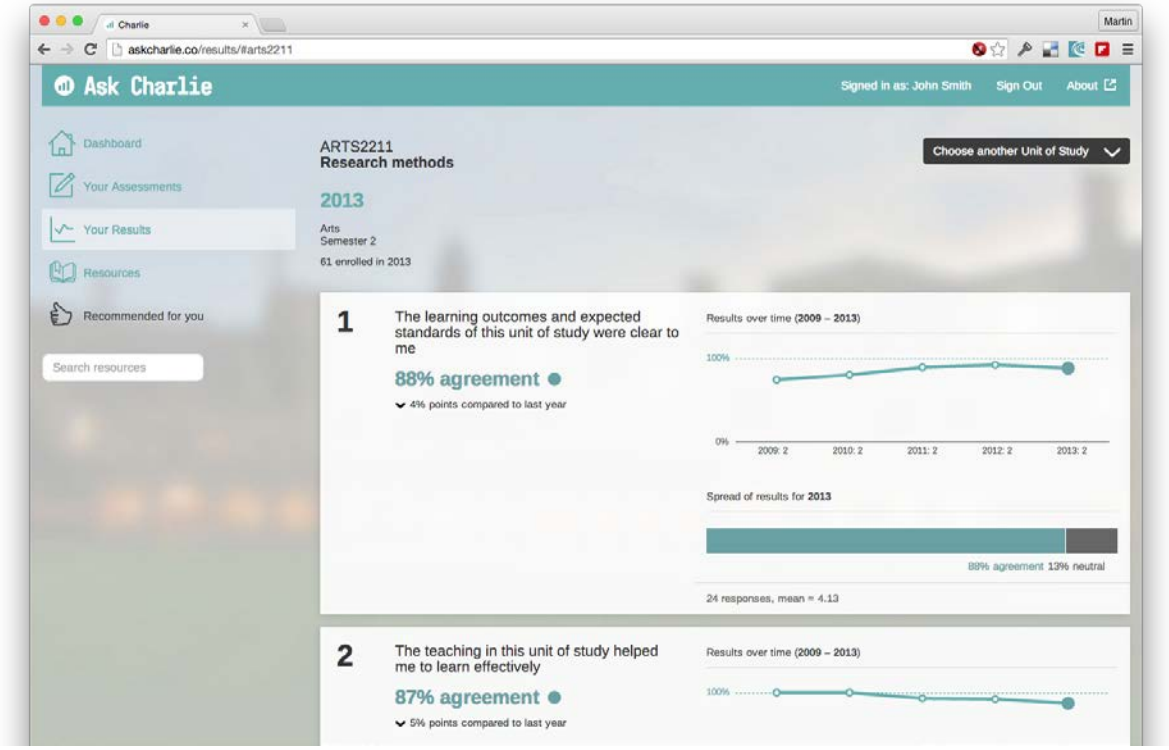

Figure 11. SET results for a unit with multiple instances of SET data.

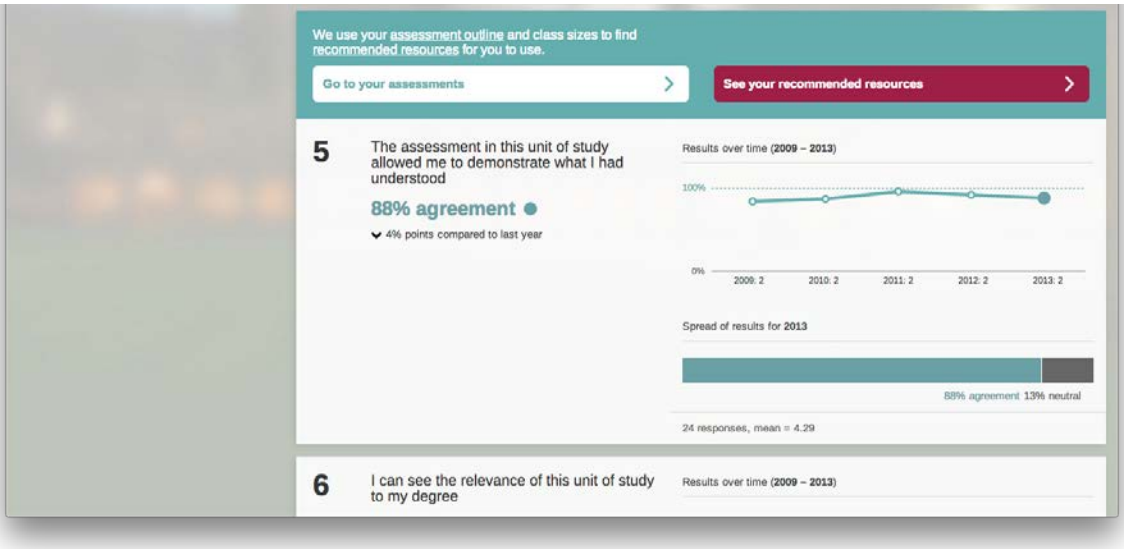

Figure 12. For question 5, which focuses on assessment, a link with the label "See your recommended resources" is displayed to provide on-click access to a personalised list of recommended resources.

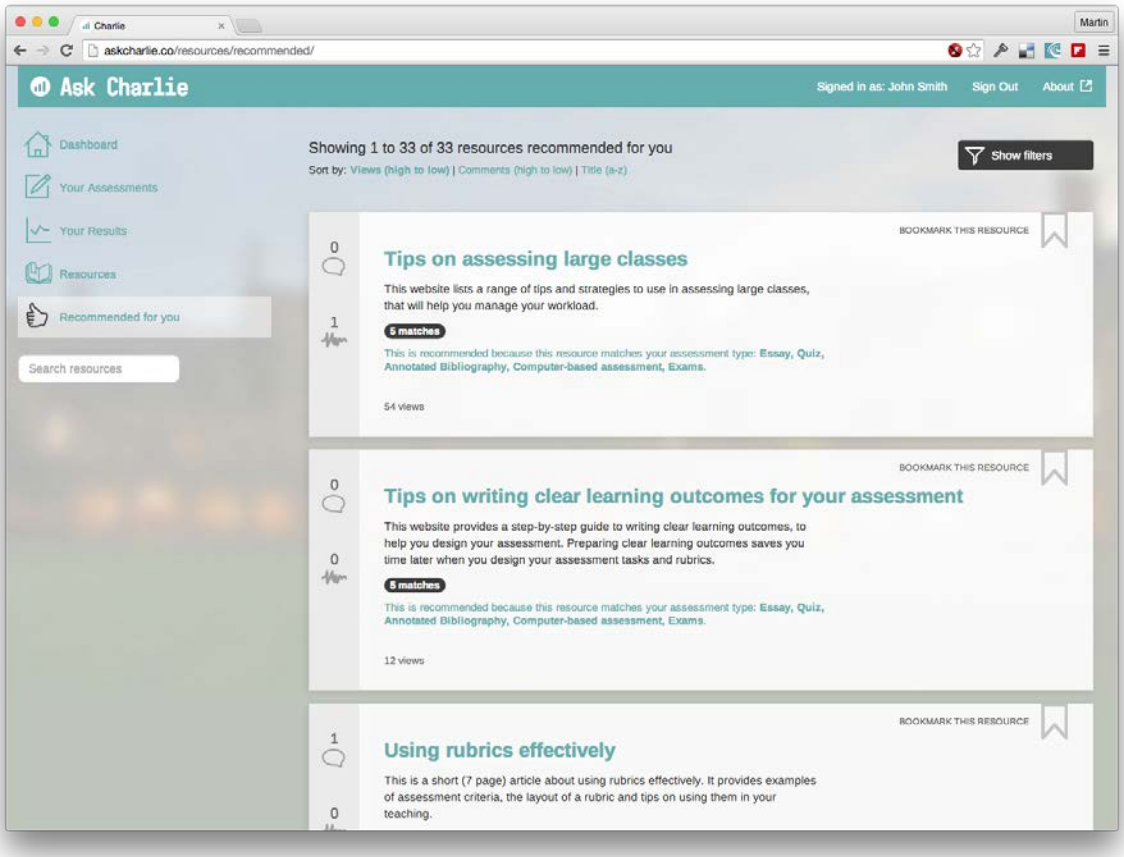

Figure 13. Recommended resources, sorted by views. The resources can also be sorted by relevance, number of comments, and title.

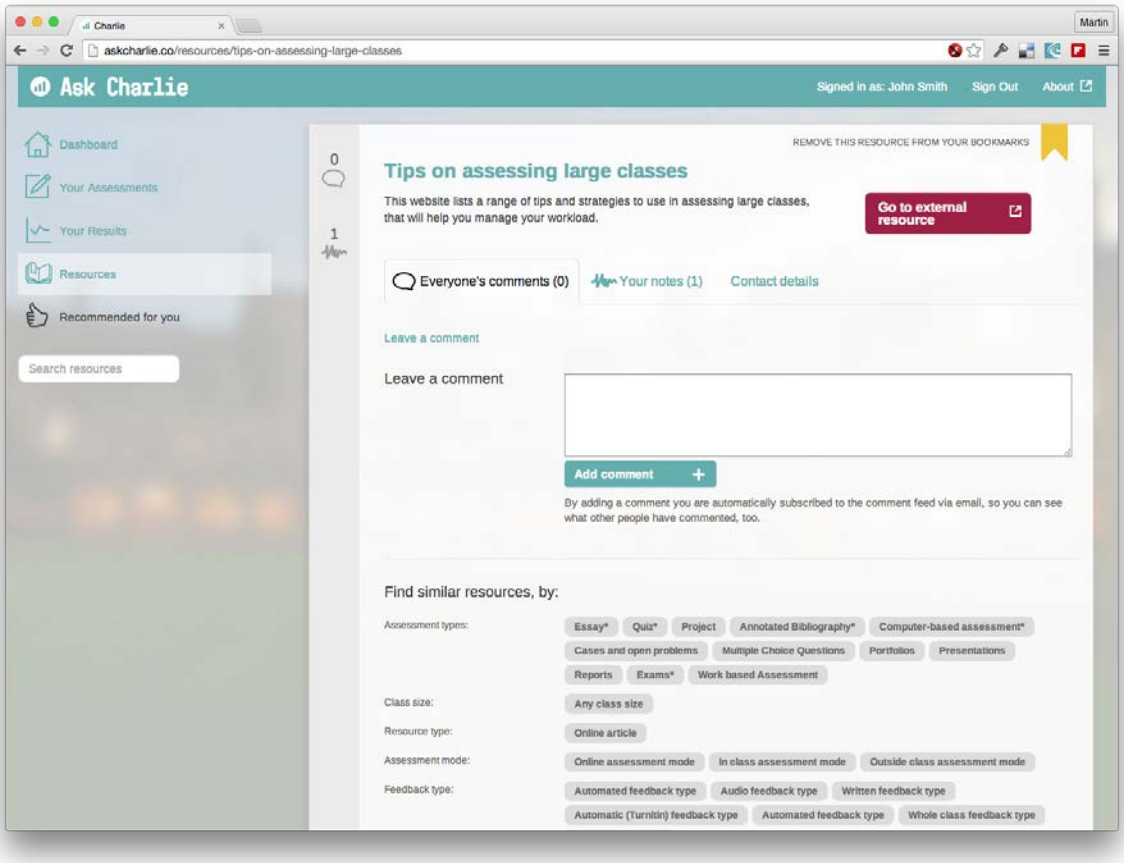

Figure 14. Resource detail page.