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# SkillClouds: the final report

**Welcome to your personal skills resources page**

You are part of the first group of students here at Sussex to use the Skillclouds pages and we need your feedback to help us keep improving it. If you have any comments and suggestions please email [skillclouds@sussex.ac.uk](mailto:skillclouds@sussex.ac.uk)

Getting you started

What are skills ?

Do I have any skills ?

How can I describe my skills ?

**Your skills** Display options : Cloud | List

a b c d e f g h i j k l m n o p q r s t u v w x y z

Search your skills :

[analysis](#) [critical assessment](#) [data analysis and interpretation](#) [ethical awareness and sensitivity](#)  
[flexibility](#) [independent thinking](#) [information technology](#) [initiative](#) [intellectual debate](#)  
[interpersonal skills](#) [leadership](#) [literature review](#) [motivation](#) [numeracy](#)  
[organisation and time management](#) [practical](#) [presentation](#) [problem solving](#)  
[professional development](#) [research](#) [self awareness](#) [self confidence](#) [self management](#)  
[teamwork](#) [verbal communication](#) [workplace awareness](#) [written communication](#)

*The above figure illustrates a student's view of SkillClouds*

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**March 2009**

**JISC**

**US**

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## **Executive summary**

1. The SkillClouds project (<http://www.sussex.ac.uk/skillclouds>) has investigated whether tags and tag clouds might be a visually appealing way of aggregating and presenting skills information to students. We adopted a user-centred design approach to ensure that SkillClouds met the needs of students.
2. The general view of students we interviewed is that skills are not foregrounded within the curriculum and that transferable skills are not mentioned on the courses they take. Where information relating to skills is made available, some students feel that the skills tend to be the same across all courses and don't feel personal to them.
3. Students are willing to use tag clouds as a search tool, although their understanding of tag cloud principles is limited.
4. Before students can move on to more complex tasks of applying their skills to a CV or job interview, they require relatively basic information about their skills to help scaffold their understanding and development.
5. Based on our research with students, we have built a system that: (i) presents skills information in an accessible format; (ii) reflects the different stages that students are at in their skills journey and (iii) offers a high level of personalisation.
6. Students gave very positive views about the SkillCloud interface.
7. Academic staff have been enthusiastic about using SkillClouds as a tool to support discussions with their students about their academic progress.
8. SkillClouds has been adopted by the University to support some of its key strategic objectives and committed funds to further its development.
9. A number of other institutions are interested in using SkillClouds and we have created a demo version and an open source version available for download. These can be accessed via the SkillClouds project website:  
<http://www.sussex.ac.uk/skillclouds>

### **Acknowledgments**

We would like to thank the following people for their help and support with the project:

- All students and staff at Sussex University who participated in the sessions that helped to inform the development and design of the SkillClouds tool
- The team from the Careers Development and Employment Centre at Sussex University, particularly Linda Buckham
- Dr Judith Good, Head of the IDEAS Lab at Sussex University
- Alice Stuart, freelance Careers Adviser
- JISC Emerge Community
- Gwen van der Velden, Director of Learning and Teaching Enhancement at the University of Bath and critical friend to the SkillClouds project
- University of Sussex Senior Management team
- Lawrie Phipps, JISC Users and Innovation Programme Manager
- Clare Hardman, Teaching and Learning Development Unit, University of Sussex

## **1. Background**

### **1.1 The need to support students with skills engagement**

Our project started from a real need within the University to help our students to identify the skills they were acquiring during their time at university, and to find ways of helping them to articulate these skills in language that employers would recognise.

In our original bid to JISC for project funding, we described the fundamental issue behind the SkillClouds project:

The ability of graduates to identify skills they have gained while at university is something that employers rate highly in selecting candidates (Yorke, 2006) and all HE and FE degree programmes, and their associated courses or modules, have outcomes that are skills orientated. However, these skills are not always transparent to students, often being, in effect, hidden within the curriculum (Fraser et al, 2007). This may be particularly the case for those subjects that are less vocational and consequently students may not be aware of the skills they have acquired as part of their degree.

Internal drivers for the SkillClouds project were the University's Teaching and Learning Strategy and the Teaching Quality Enhancement Fund action plan. The latter contained the objective to "undertake systematic identification and highlighting of skills embedded in undergraduate level courses and build a searchable database". External Key Performance Indicators also acted as drivers for the project - the National Student Survey, in particular the items under the 'personal development' scale, and the Destination of Leavers from Higher Education results published by the Higher Education Statistics Agency (HESA). Outcomes of both of these surveys are used in rankings such as the Times and Guardian newspapers. SkillClouds has the potential to contribute to improved performance in both of these surveys.

### **1.2 The rationale behind the use of tag clouds**

Marchionini (1995) draws a distinction between *analytic* and *browse* search strategies. Analytic search strategies require the user to already understand the information they need and be able to frame searches for it using relevant key terms. Browse-style search is characterised by a lower cognitive load and is particularly suitable where the 'anomalous state of knowledge' paradox is present and where the information seekers may not have sufficient knowledge and understanding of the area to define an analytic approach to solving the problem.

Browse search strategies would clearly be an advantage for supporting students around engaging with skills. We decided to explore the use of tag clouds, as a browse-style interface tool.

A 'tag' is a keyword or descriptive term that is associated with a particular resource, such as a photograph, web page or blog posting, and which is used in order to facilitate the retrieval and dissemination of that resource. A 'tag cloud' is a weighted list of tags presented in paragraph layout. Typically, tags in a tag cloud are displayed in alphabetical order, and underlying attributes within the data set, such as the frequency of use of tags, are mapped to display features within the tag cloud such as font size or colour. In a tag cloud, each tag

is generally a hyperlink to a list of the resources that have been tagged with that keyword. So tag clouds both display the key terms within a set of resources and provide a tool to use for search/navigation into those resources.

### 1.3 Schematic representation of SkillClouds

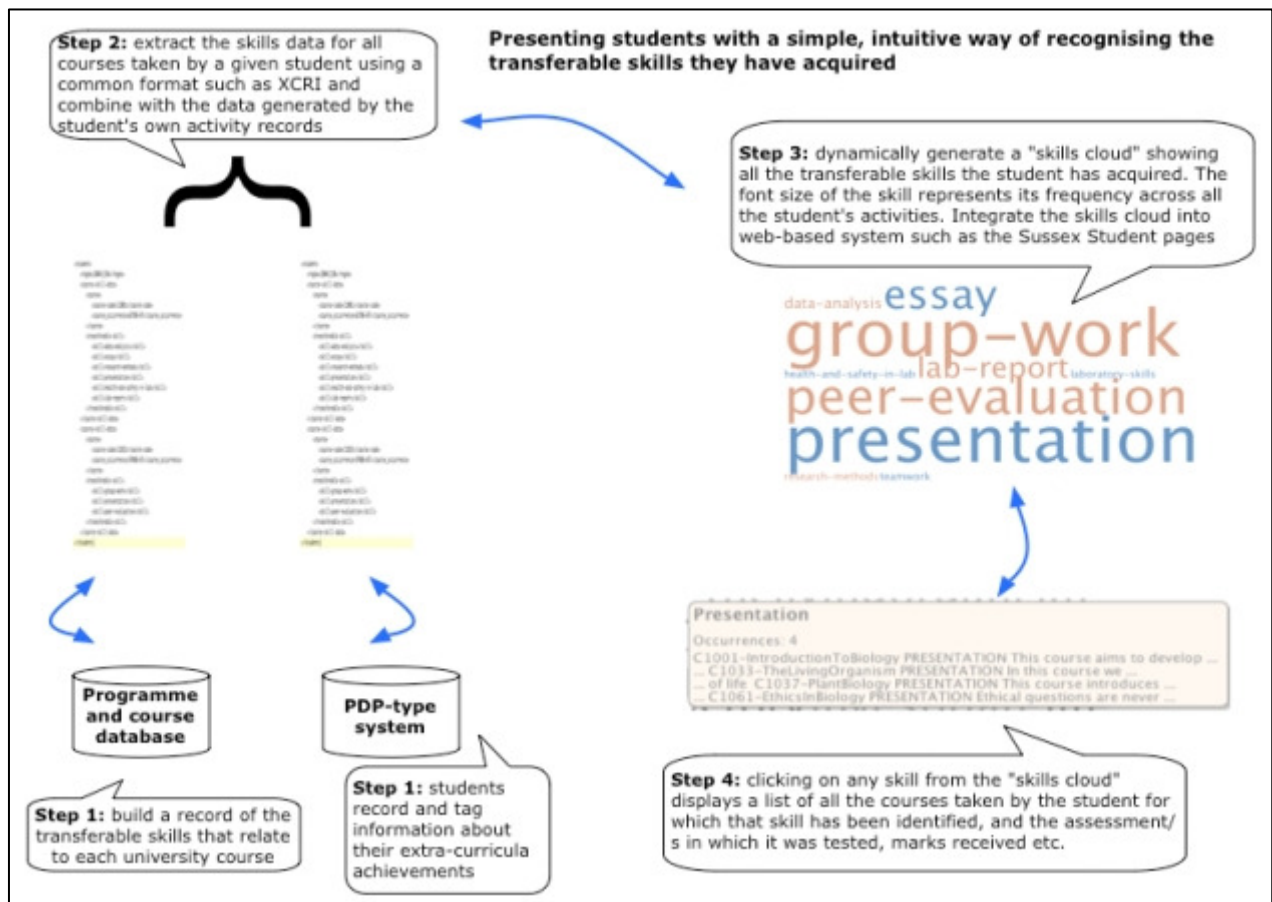
In the schematic diagram below, the SkillClouds project proposal is displayed as a four step process.

In *Step 1*, courses and activities are tagged with skills that are relevant for them. Some of this tagging would be carried out by the institution, and some of it would be carried out by students tagging activities they themselves have undertaken and reported on in an e-portfolio or personal development system.

In *Step 2*, these tags are aggregated together from appropriate feeds from the systems that store and manage the underlying data.

In *Step 3*, a tag cloud is dynamically generated for a given student, based on the tags that are relevant for them. We call a tag cloud showing all the skills for a particular student a "skill cloud".

*Step 4* depicts a page based on a single skill that has been navigated to by clicking on one of the skill tags in the skill cloud. As we worked on the project, we came to realise that the quality and personalisation of this component of the tool was of crucial importance, but this was not part of our thinking in the early stages.



## **2. Aims and Objectives**

The aims of the proposed project were to:

- investigate the use of social bookmarking tools to support the administrative process of recording and refining the university's data on skills for its course and programme offerings
- explore and evaluate the idea of presenting information on skills to students in the form of a skills cloud, and find out whether it enables students to engage more fully with skills
- support the Users and Innovation programme

The objectives of the proposed project were to:

- design and pilot an approach to collecting skills data through the use of social bookmarking tools such as del.icio.us
- build a service that utilises the social bookmarking tool's application protocol interface (API) to harvest the skills data
- build a service that merges/mashes-up skills data with student generated data
- build a service that outputs a skills cloud
- test the value and scope of these skills clouds with a set of student users and key stakeholders within the University
- explore how we might integrate the development with existing online environments (for example, the University VLE, student intranet pages etc)

Our project was structured using the User & Innovation Development Model (see Synthesis and Evaluation of Reference Model Projects website) which is a methodology that places the user experience at the heart of all development work. This means that we have changed some of our initial aims and objectives - or their priority - based on what our users have told us matters most to them.

The most critical change of emphasis in our aims and objectives has been moving away from our initial proposal that we would make use of delicious as an interface to support the collection of skills meta-data at course/module level.

A related change in emphasis has been our realisation during the project that the quality and personalisation of the resources made available to students via their skill cloud are of crucial importance. In our original plan of SkillClouds we had paid relatively little attention to the resources that would be made available to students who clicked on a skill-tag within our proposed tag cloud. As we talked to students, however, it became apparent the information underlying the tags would have to contain some quite detailed and carefully-written details about each skill. We therefore took the decision to employ a careers expert to write materials of a sufficient quality to engage students. We also became aware of the high degree of personalisation that students wanted. At least some of the information needed to be specific to each student and not just the cohort. Without this sense of personalisation, students indicated that the SkillClouds tool would be viewed with some scepticism.

This is described in some detail in a blog posting:

<http://skillclouds.blogspot.com/2009/01/reflecting-on-changes-in-project-aims.html>

### **3. Methodology**

We wanted to ensure that the SkillClouds tool met the needs of students and therefore adopted a user-centred design approach to our research (framed around the User & Innovation Development Model).

In the initial stage, we used three different methods.

(i) We wanted to discover whether students would use tag clouds and how, in broad terms, student would like skills information to be presented. To investigate this, we ran an experiment in which we invited students to carry out three simple search tasks looking for local services using a web page. The page contained both a text entry search box and a tag cloud and we recorded the frequency with which students used the tag cloud to conduct the searches. Once the students had completed the task, we interviewed them about their feelings about the exercise and their experiences of the search strategies they had adopted.

(ii) We also ran user centred design sessions with several small groups of students, in which we invited them to participate with us in designing a system to help them visualise their skills. These sessions demonstrated that students were supportive and enthusiastic about our concept.

(iii) The next step was to think about how we were going to construct the resources within the SkillCloud tool. To support this process, we carried out an open card sorting activity in which we presented students with a number of 'goal statements' and asked them to group them in a way that made sense to them. The statements were based on what students had said in the user centred design sessions and on discussions with careers experts at the University. Examples of goal statements included:

- I'd like to know what a skill is
- I'd like to see information on where that skill was used
- I'd like feedback from tutors for the assessment on which I attained that skill
- I'd like examples of how I can demonstrate this skill on a CV



The details of and outputs from the three activities described above can be found at: [http://www.sussex.ac.uk/skillclouds/pilot\\_stage.php](http://www.sussex.ac.uk/skillclouds/pilot_stage.php)

Following this initial stage, we moved into the Rapid Development Cycle stage, in which we focused on the interface for delivering the information that students had identified as important. We constructed interactive prototypes based on wireframes<sup>1</sup>. We then tested these prototypes and iteratively improving them based on the students' experiences and feedback. The details of the methodology from this phase can be found at:

[http://www.sussex.ac.uk/skillclouds/rapid\\_development\\_cycle.php](http://www.sussex.ac.uk/skillclouds/rapid_development_cycle.php).

Finally, we integrated the SkillCloud feature within Sussex Direct, the University's Managed Learning Environment. SkillClouds was evaluated within the University during the Autumn term of 2008/9. Two main approaches were adopted. The SkillClouds feature was made available to: (i) students who were taking a Career Development Course facilitated by the University's Career Development and Employment Centre; and (ii) final year students within English, Geography and Sociology. Students' views on the content, functionality and utility of SkillClouds were evaluated through user logs, questionnaires, one to one interviews and focus groups that explored the content, functionality and usability of SkillClouds. The details of the methodology from this phase can be found at:

[http://www.sussex.ac.uk/skillclouds/evaluation\\_stage.php](http://www.sussex.ac.uk/skillclouds/evaluation_stage.php)

A screencast giving an overview of the SkillCloud tool embedded within Sussex Direct for the evaluation phase of the project can be seen here:

<http://www.screencast.com/t/yoYOHYGPxL>

During the latter stages of the project, it became apparent that staff were interested in using the SkillClouds tool (see section 5.4). This had not been part of our original plan. We therefore undertook further evaluation with staff members in the departments of Sociology and Geography at the University of Sussex. These departments could see a very real value in using the SkillCloud tool to help support meetings with their academic advisees.

## **4. Implementation**

There are three main strands to the implementation of the SkillClouds project. The first strand has been the implementation of user centred design methodologies, working particularly with students to find out in depth what our target users' thoughts and feelings were about the SkillClouds tool and about skills generally. The second strand was concerned with the development of the SkillClouds tool as a piece of software. The third strand involved managing stake holder engagement. The way in which these strands were interwoven has been described above in terms of the UIDM. In this section, we are going to focus in some detail on the strands themselves, and what we learned from them.

### **4.1 Implementing user centred design methodologies**

#### **(a) Recruitment**

A rather obvious place to start in thinking about user centred design methodologies is in how best to recruit students into the sessions. Our approach for our initial user centred design sessions was through sending emails to specific groups of students taking a particular course that we had identified as being a key group to use in our pilots - students

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<sup>1</sup> Information Technology Systems and Services, University of Minnesota define wireframes as "a skeleton version of a website that depicts navigational concepts and page content. It is a set of cross-linked pages that acts like a functional prototype of the final website without the graphics"

taking the Career Development course offered to 2nd year students in particular disciplines within the University.

We found that we had a very low take-up from these emails. We noticed that several students who did attend our sessions were Student Representatives for their department, so we then emailed all Student Reps and invited them to a further user centred design session organised just for Student Reps.

After this, we recruited Stuart Lamour to the project as Developer/Integrator. The next phase of engagement with students was around recruiting for our card-sorting exercise. Stuart experimented with a different approach, and used Facebook as a way of reaching out to students. Evidence from a recent study of University of Sussex first year students found that 87% of respondents regularly use Facebook so this approach is unlikely to introduce any more bias than using email as a recruiting method (<http://www.sussex.ac.uk/its/cs/1-3.html> ).

For more detail on recruitment methods see:

<http://stuartlamour.wordpress.com/2008/06/20/user-testing-recruitment-social-network-style/>

#### (b) Getting a steer from the users

It became apparent that part of students' reluctance to engage with the existing skills information provided by the University was their sense that the information was irrelevant to them and was not targeted at them or personalised for them.

Our initial assumption was that providing the ability to students for them to add their own notes on the skills they had developed during their time at university would be a way of providing this important element of personalisation.

Yet students tended to be equivocal about features that would allow them to add user-generated content into their skill cloud. The majority were in favour of adding supplementary information to the existing skills, but were not in favour of adding new skills to their cloud. This seemed to be related to many students' general lack of confidence with entering into a skills dialogue and their sense that they needed extremely basic guidance and support around identifying skills and articulating those skills.

## **4.2 Implementing the SkillClouds tool**

We used a rapid development approach with very short cycles of iteratively amassing user requirements, developing, and then trialling with users.

In order to give a rich set of behaviours to the tool without the time delay in constantly making calls back to the server, we used an Ajax-style approach where Javascript is used to manage the CSS styling of our web pages.

The use of Javascript to provide the required set of behaviours is described here: <http://skillclouds.blogspot.com/2008/11/rapid-development-documents-and-ajax.html>

A number of libraries for Javascript were reviewed, and JQuery (<http://jquery.com>) was selected. It allowed us to rapidly code wireframes into clickable interactive prototypes. The library's relatively compact size, cross browser compliance, semantic object orientated design, documentation, user group support and large repository of GPL/MIT licensed plugins made it the ideal choice for both rapid development, and eventual deployment in the SkillClouds live pages.

As part of our development work on the open source version of the SkillClouds tool, the project Developer/Integrator spent some time running "usability" testing with developers to ensure that the code and documentation being released was easy to install outside of our institution and that coding conventions and documentation all made sense to a range of developers. We felt this was a way of providing some community input into SkillClouds and of starting to establish its open source maturity.

<http://skillclouds.blogspot.com/2009/03/skillclouds-developer-happiness.html>

### **4.3 Stakeholder engagement activities**

Before funding was secured from JISC, we held a meeting with stakeholders at the University of Sussex to discover whether supported our ideas for developing SkillClouds. Stakeholders included:

- Pro-Vice-Chancellor Education;
- Head of Registry;
- Members of the University of Sussex Students' Union (USSU);
- Head of the University Web Team;
- Director of Taught Programmes;
- Directors of Student Support;
- Director of Careers Development and Employment Centre.

Other stakeholders identified during the course of the project include:

- Staff and students in the participating departments;
- The person in the new post of Director of Student Experience and Support;
- The person in the new post of Director of Technology Enhanced Learning;
- The newly-appointed Director of IT Services.

During the lifetime of the project, we kept these stakeholders informed through regular one to one and small-group meetings, email updates and via the website blog. In September 2008 we held meetings of the key stakeholders listed above to update them on project progress. By this stage, we had a fully functioning prototype and evidence from students that they thought the SkillClouds was a useful tool.

This meeting proved to be vital in raising awareness about how SkillClouds could support academic departments. As a result of this event, we were invited to a management meeting at a school of study, and two academic departments in this school agreed to participate in a pilot to evaluate how SkillClouds could support the role of the academic advisor. We were asked to present a proposal to the University's Teaching and Learning Committee that outlined how SkillClouds could help support students and staff at Sussex and help to address areas of strategic priority for the University. Members of the committee agreed to provide further funding to embed SkillClouds in departments across the University which would enable the project team to create work closely with departments to ensure that the

SkillCloud tool met their needs and create additional resources (See section 6.2 for further details).

#### **4.4 Overall lessons learned about implementation**

Please refer to section 6.4 - this covers the lessons learned about implementation

### **5. Outputs and Results**

The SkillClouds project has resulted in a number of useful outputs and results which we have grouped for convenience. The starting point for all these resources is the SkillClouds website:

<http://www.sussex.ac.uk/skillclouds/>

We have redesigned our website to highlight our transition from a project to a product. We identified that there were three main types of information that we needed to provide:

- general background information on the project
- information on how to demo SkillClouds or download it for implementation on a new site
- information on how SkillClouds Phase 2 within Sussex is taking shape

Our old website front page was very typical of a project website - with a large amount of text, and with text that related to an early stage in the project lifecycle. The new look front page draws on the popular 3 column layout that is now extremely common on commercial websites.

#### **5.1 Listening to students**

We carried out a number of different studies with students, including user centred design sessions, card sorting and in-depth interviewing, as outlined in section 3. The findings from these activities are outlined briefly below and are documented in detail here:

[http://www.sussex.ac.uk/skillclouds/pilot\\_stage.php](http://www.sussex.ac.uk/skillclouds/pilot_stage.php)

#### **5.2 Students' information seeking behaviour**

One of the first studies we carried out was an investigation of students' willingness to use tag clouds. This work was presented at the Oxford University conference Shock of the Old 7 and can be accessed as a PowerPoint, via SlideShare or as a short paper.

116 students undertook a search/navigation task in which they were offered both a tag cloud and a text input search box. Over 3 trials, 89% of students used the tag cloud at least once, and 69% used it for all of their searches. This suggests a high level of familiarity with tag clouds. Qualitative findings were that a number of students disliked the weighted font sizes and many had not realised that the tags in the cloud were in alphabetical order. However, students reported that they had used the tag clouds preferentially due to the 'ease' and 'speed' this offered over typing search terms, showing a preference for browse-style search strategies. To find out more, see:

<http://www.sussex.ac.uk/skillclouds/publications.php?publication=shock2008>

The findings helped us to design the SkillClouds interface, which includes a number of features to make tag clouds more usable. These include:

- an option to toggle between cloud view and list view
- a feature that enables students to type in a part of a search term and see all tags that contain that string
- an A-Z list to reinforce the idea that the tags are in order and to enable quick navigation

For more detail see:

[http://www.sussex.ac.uk/skillclouds/rapid\\_development\\_cycle.php](http://www.sussex.ac.uk/skillclouds/rapid_development_cycle.php)

### **5.3 Students' information needs**

#### ***The SkillClouds user journey***

As we spoke to students about their understanding of skills and worked with them on very simple prototypes, we discovered that their information needs could be understood in terms of a user journey from very simple, basic definitions to more complex activities. We realised this was similar to the SCOUNL approach to information:

<http://skillclouds.blogspot.com/2008/09/skillclouds-user-journey.html>

<http://skillclouds.blogspot.com/2008/07/seven-key-skills-in-information.html>

We presented on this at the ALT-C 2008 conference, and the talk can be viewed on SlideShare or as a short paper:

<http://www.sussex.ac.uk/skillclouds/publications.php?publication=altc2008>

The significance of this work is that it can come as a surprise to many people engaged in career development just how difficult some students find the discourse of skills. By really listening to the students' experience, we have been able to meet their needs and build something that meets these needs.

When we reflected on the skills requirements that students had expressed, we realised that our original project plan had not formulated a clear idea of the resource set that students required. Consequently, we worked closely with the University Career Development and Employment Centre and commissioned a careers advisor to write a set of resources based on the needs that students had defined. These resources were incorporated into the SkillCloud in a format that met the needs of the users (short sections of information, that take the user from relatively basic skills information to more complex ideas about how to apply skills in different contexts).

#### ***The importance of personalisation***

A key message from students about their needs for skills information was the importance of personalisation. One of the major complaints that students had of the existing information was that it was not easy to engage with because of its lack of personal relevance:

"They put it in our course documents, our skills or learning objectives or something, but I don't think anyone ever reads that, because they all say the same thing."

"They all seem to see it just as a formality they have to go through to tell us this thing in the course document."

"It's just another thing they say isn't it. "

We have submitted an abstract to the ALT-C 2009 conference on this, which can be viewed here:

<http://www.sussex.ac.uk/skillclouds/publications.php?publication=altc2009>

### ***The importance of skill engagement for equity issues***

We became interested in the ways that different students had access to an understanding of skills and of how to articulate their skills in the context of seeking employment. Some of the students we interviewed talked about the fears they had of being seen to be 'boasting' or 'arrogant'. Other students talked with confidence about how their parents had helped them to understand the skills they were acquiring.

We explored these ideas in the context of the 'hidden curriculum' for a paper that will be presented at the Hertfordshire University Blended Learning Conference 2009:

<http://www.sussex.ac.uk/skillclouds/publications.php?publication=blu2009>

### ***How a student might use SkillClouds***

We put together a brief screen cast that provides a review of how SkillClouds could be used by a student while they were applying for a job:

<http://www.screencast.com/t/rJRwdV3V3>

## **5.4 Staff engagement with the skills agenda**

As we started to evaluate the use of SkillClouds with groups of students, an unexpected outcome emerged. The academic advising role (Personal Tutor in some HEIs) is one where staff would welcome resources to support their meetings with students. We had not considered that SkillClouds could provide this support until raised by academic staff at a dissemination meeting. The value of the presentational style of the SkillCloud, and the underlying information is something that staff were enthusiastic about. Academic staff have many competing demands and the fact that the SkillCloud would facilitate their relationship with students, yet require minimum additional work on their part, was a major factor in getting a favourable response from faculty.

Sample quotes from the Head of Department in Sociology:

"I've never seen something that's quite so helpful to both staff [academic teaching faculty] and students. [...] I think it's an area that we do have real difficulty with as academics because we don't really think in those terms [skills]."

"It's really good to find a real focus like that and it helps with that whole role [academic advising] because it is an overview role rather than a very specific targeted meeting about a particular piece of work or something. So in that sense, the [students] I have [used] it with, it's worked really well. They have commented on it."

"We sat with the students .. and then when they saw it picking bits out it was wow, that's incredible because it did have bits of feedback in there wow, this is really good"

Sample quotes from members of the Geography faculty:

"Given that we were piloting it with first year students, there wasn't much online feedback for students to view, However, in discussion with students, the utility of skillclouds became much more obvious".

"Overall, students liked the idea of viewing their skills and being able to relate this to the assessments and feedback".

### ***How an Academic Advisor might use SkillClouds***

We put together a brief screen cast that provides a review of how SkillClouds could be used to support the Academic Advisor role:

<http://www.screencast.com/t/WsTZdkyEsR>

## **5.5 Taking SkillClouds forward at Sussex - SkillClouds phase 2**

The University has decided to fund SkillClouds from January to October 2009, to provide support to the Academic Advisor role at the University and to work with departments to raise students' awareness of the skills they are acquiring from their time at university.

The background to this decision and the timetable for work taking place with departments at Sussex can be viewed on the page:

[http://www.sussex.ac.uk/skillclouds/skillclouds\\_at\\_sussex.php](http://www.sussex.ac.uk/skillclouds/skillclouds_at_sussex.php)

## **5.6 Use of SkillClouds in other institutions**

The publicly available version of SkillClouds has been written carefully to pick up what ever CSS style sheets an institution uses for its web site look and feel, which means that it hasn't been optimised to look good in any one particular environment at the expense of its portability.

We have made SkillClouds available in two ways:

### ***A demo version running on the SkillClouds web site***

The demo version is available here: <http://www.sussex.ac.uk/skillclouds/demo>

This version is publicly available so it lacks elements of personalisation that proved to be important parts of the version we deployed at Sussex University. However, it provides an introduction to SkillClouds with no technical barriers or set up time. The demo site enables you to post in the URL of any style sheet code that your institution uses, so that you can get an institutional feel with absolutely no development effort. Of course, the use of these styles can be tailored once the SkillClouds code has been downloaded, so if the style sheets don't look great to start with this doesn't mean that SkillClouds won't look good in your institution.

### ***Open source version available for download***

The open source version that institutions can deploy on their own systems is available here: <http://code.google.com/p/skillclouds>

It has been released with the [MIT License](#) which we chose because it is a highly permissive licence which we feel will allow other people to make whatever use of SkillClouds they wish.

The SkillClouds image bank used to illustrate the pages on our open source version is based on images from Flickr released under Creative Commons licences.

We have carried out a number of tests with developers at other institutions to ensure that the SkillClouds tool is as easy as possible to deploy at other institutions. This has included asking the developers to provide feedback on the documentation, the code and the in-line comments.

<http://skillclouds.blogspot.com/2009/03/skillclouds-developer-happiness.html>

See section 6.2 for further details on institutions that are interested in implementing SkillClouds.

## **5.8 Other outputs**

Xtranormal animation <http://skillclouds.blogspot.com/2008/11/skillclouds-mini-series.html>

SkillClouds cartoon [http://farm4.static.flickr.com/3301/3250405001\\_88d677e2e5\\_o.jpg](http://farm4.static.flickr.com/3301/3250405001_88d677e2e5_o.jpg)

Project images <http://www.flickr.com/photos/skillclouds/>

Project videos <http://www.vimeo.com/stuartlamour/videos>

## **6. Outcomes**

### **6.1 Project achievements against the aims and objectives set**

Overall, the project has achieved its primary aim of providing a tool that presents information on skills to students in the form of a skills cloud that enables students to engage more fully with skills. Within this, the specific objectives of building a service that merges/mashes-up skills data with student generated data and outputs a skills cloud has also been met. The value and scope of the SkillCloud has been tested with a set of student users and key stakeholders within the University using a range of research methods (see section 3). As mentioned in section 2, the use of a delicious-type tool to record skills information has not been realised.

### **6.2 Impact on the teaching, learning, or research communities**

The impact on those students who we have engaged as part of our research has been very positive.

"I like it. I think it's good to see the kind of transferable skills that you've acquired during your degree, not just essay writing and presentation. So I like that aspect of it."

"Skillclouds highlights what you are most skilled at and provides examples of how you can use them in the future."

"I think it's good because a lot of these things I probably would have put on a CV thinking, yeah I can do them. But it's good to have solid examples of when I've used things so I can apply them in interviews and actually look like I know what I'm talking about."

One unexpected outcome of the project was the benefits to the teaching community. Academic staff feel that the SkillCloud can be used to provide a framework Academic Advisor

(aka Personal Tutor) meetings. Both students and staff have concerns about the purpose of these meetings. Throughout their University life, staff can envisage that the SkillCloud can be used as a basis for discussion about their advisees skills development. Teaching staff also felt that SkillClouds would be valuable in supporting course and programme design by helping them to articulate the skills that are embedded within the curriculum.

The University of Sussex has committed further funding to roll out SkillClouds across the University. SkillClouds will be used as a tool to help academic advisors work with students around identifying their longer term goals and objectives, and this will be taken forward taking throughout the rest of this academic year. The SkillClouds team will work closely with a small number of academic staff in each department to identify how SkillClouds will be most effectively deployed in their context.

Funding will be used to support:

- further technical development and integration of SkillClouds;
- the creation of further skills information resources to support students;
- the running of sessions with academic staff.

For more details see:

<http://skillclouds.blogspot.com/2009/03/skillclouds-forming-over-sussex-and.html>

We have also had interest from a number of universities in the project and its outcomes (both in the UK and overseas). These include the University of Bath, Glasgow Caledonian University in the UK and Charles Sturt University in Australia. We have also been discussing SkillClouds with a representative from the UN who is exploring how it could be adapted for her setting. We are liaising with these institutions to see how they might wish to use SkillClouds in their contexts.

### **6.3 Who will benefit from the work, how, and why?**

- HE and FE community: a tool that helps students articulate their skills more clearly
- Careers advisors: to frame discussion and support the PDP process
- Academic advisors/Personal tutors: provide a foundation for meetings
- Teaching staff: Course and programme design
- Students: better understanding of skills, skill gaps and reflection on learning
- The JISC / U&I programme: better understanding about student and staff views on tag clouds and tagging and a robust product that can be deployed in other institutions.

### **6.4 What we learned that may be applicable to other projects, e.g. whether the methodology worked.**

#### *1. Understand the starting point of your users*

There is generally a fairly limited dialogue about skills in Higher Education, particularly in research-intensive universities. We were aware of this before the project started, but perhaps did not realise how acutely some students felt this was the case. From the point of view of academic staff, there was a realisation that the skills agenda was becoming more important, but a feeling from a number of academics that they were ill-equipped to enter a discourse with students on the subject.

*2. Take a user-centred design approach*

Listening to what the users have to tell us was incredibly important and surprising. We implemented some major changes to the interface design and content on the basis of student feedback. We feel this approach is applicable (and crucial) for other development projects – and can prove very persuasive when seeking wider stakeholder buy-in.

*3. User-centred design needs users*

Do not underestimate the difficulties of recruiting sufficient numbers of people to help with user-centred design. We found that social networking sites were a much more effective way of recruiting students than email.

*4. Academic staff value tools that save them time*

Consider building tools that staff can use with very little setup time and effort. Academic staff have many competing demands and anything that facilitates their relationship with students yet requires minimum additional work on their part is viewed favourably.

*5. Personalisation of information is extremely important to students*

Personalisation can, however, be difficult to scale up. There is, therefore a pay-off between the level of customisation of the tools an institution can offer and the cost of development and sustainability. In addition, it is important to find ways of providing personalisation that do not require additional effort, particularly where it's in a domain where students lack the confidence to start providing their own information and staff time is in short supply (see 4).

*6. Don't forget that developers are "users" too*

If you succeed in creating a fantastic tool that staff and students love, bear in mind that it will only be adopted by other institutions if it's easy for staff within those institutions to take forward. Developers form another community of "users", who will be experiencing design decisions including the coding style and the documentation you have provided. Carrying out testing with developers enables the project outputs to be made easier to understand and implement in different institutions.

*7. Timing is critical*

We presented our findings to a meeting of key stakeholders, including senior managers and those with responsibility for the student experience at school level at a time when departments were writing their Teaching and Learning Action plans for the forthcoming year. Staff at the meeting could see a way in which SkillClouds could help to address some of the objectives in their action plans. This helped with securing additional funding and commitment to the institutional rollout of SkillClouds.

**7. Conclusions, implications & recommendations**

<b>Conclusions</b>	<b>Implications/recommendations</b>
Students were not particularly familiar with the principles of tag clouds (e.g. they often	If considering the use of tag clouds, explanatory information about the underlying

<b>Conclusions</b>	<b>Implications/recommendations</b>
did not realise that tags were rendered alphabetically)	concepts are required. Also provide the opportunity for students to view tags in an A-Z listing
Notwithstanding the above conclusion, students are willing to use tag clouds as a search tool and to navigate to resources	Tag clouds are a viable approach to represent resources to students
Skills information must feel meaningful and personal to students if they are to engage with it	Careful thought should be given to the what information is presenting and how it will be tailored to individual students (or cohorts of students). Without this, student are unlikely to engage with the resources.
Students want access to relatively basic skills information (in comparison to the expectations of Career experts	Provide very basic skills definitions to scaffold student understanding,. This will give them the best chance to be able to apply skills in the context of CV building /job application
Students have differing views on the value of seeing feedback on assessed work that encompassed a particular skill, particularly if feedback is not positive	<p>Options</p> <p>If this information is being presented, it should include information that directs the student to where they can seek additional support. This could include module organiser or academic advisor. Could also include some guidance on how to interpret and utilise feedback.</p> <p>Build a function where students can tag their assessments with the skills that they think are most appropriate (selected from a suggestions list as per delicious). This would offer the students the personalisation and help address the comment 'at first I was impressed, but kept getting the same feedback...'</p> <p>Allow students to hide the feedback.</p> <p>Try to ensure that feedback to students it is as constructive as possible - guidance and development for staff on what constitutes effective and appropriate feedback.</p>
The extent to which students wish to add new skills and skills information of their own is unclear	This requires further investigation.
Students gave very positive views about the SkillCloud interface	Ensure a user-centred approach is taken to interface design
Staff can see real value in using the SkillCloud to support meetings with their academic advisees/personal tutees	Ensure that academic advisors/personal tutors have access to their advisees/tutees SkillCloud

<b>Conclusions</b>	<b>Implications/recommendations</b>
Staff can see value in using the SkillCloud to support course and programme design	Ensure the SkillCloud is included in resources to support curriculum design
There are conflicting views about the extent to which skills should be highlighted within the curriculum	How you address skills will be context-specific - certain subjects (and the staff and students within those subjects) may be more resistant to foregrounding skills
Careers experts perceived that students are further on in their skills journey than in reality	Information produced by careers advisors should be aligned to the stage of the journey that students are at
Careers experts can see how SkillClouds can support the PDP process	The flexible, personalised nature of the SkillClouds offer real opportunities for student engagement with the PDP process.

## **8. References**

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