1 INTRODUCTION

Like the mobile phone before it, it could be said that social networking via social software has transformed how people, or at least the under 35’s communicate. As far back as 2005 in the US around 85% of University students used Facebook, a figure closely matched here in the UK (Kirschner, 2010). Although this figure has fluctuated of late, the overall trend is still on an upward curve. The media famously called this revolution Web 2.0 (O’Reilly 2005), where due to technical advances in hardware and software, larger amounts of data, particularly images and video can be freely exchanged quickly and effectively over the internet.

Social software as a whole has already been well-documented, and depending on how you see it, is either all the rage or so 2008 (Underwood, 2009) and applications such as wikis, blogs and social networking sites are increasingly being used in the education domain and have received widespread attention (Schroeder, 2010). Less well documented is the application of social software specifically in relation to industrial design and product design education.

2 BACKGROUND

Increasingly academics see social software as a new and important tool for communicating, supporting and encouraging their students’ interest in their chosen area of study. However, professional bodies such as the Joint Information Systems Committee in the UK (JISC), who’s main purpose is to inspire UK colleges and universities in the innovative use of digital technologies stated that despite the hype, there is significant debate over the advantages and disadvantages of incorporating social software into mainstream education (JISC, 2007) and with further studies showing that Facebook use can lower a student’s grades by 20 percent (Kirschner, 2010) academics and university governing bodies remain cautious about adopting social software as a main stream tool.

As is the case with most new technologies, the benefits and functions of this type of software broaden out and filter down as it develops, allowing wider application of these new found resources as they are taken up by more diverse people, be that from an age, background or occupational point of view.

The education domain has a long tradition of using information and communication technology and universities should be actively involved in the updating and development of the learning process to keep pace with society and current thinking. As early as the 1970s, institutions had started to embrace electronic media such as audio tapes or radio broadcasting as alternative channels for the distribution of learning materials (Schroeder, 2010).

From a student’s perspective, social software is a logical addition to a students learning toolbox, your average 18-21 year old undergraduate fits the profile of the heaviest users of social software and can arguably draw on and bridge the gap between the teen socialising experiences of bebo through to the corporate connections giant that is LinkedIn and beyond.

So it could be argued that successful integration of social software into teaching and learning in HE requires a focussed and considered approach if it is not to be written off as yet another example of the
The problems and responsibilities must be closely considered and monitored to make sure it is exploited in a positive way to further and broaden the learning experience and not merely used as a marketing tool to hook in young people.

The notion of using social software to further the understanding of industrial design amongst undergraduates is something that the author has been researching since beginning his academic career at the University of Derby in 2002. Before this, as an Industrial Designer working for a large multi-national company with a strong computer aided design background, the concept of sharing information via networks and working with people remotely was already second nature. But it was the discovery of the portfolio forum site Coroflot.com in 1998 that struck a chord with the author and highlighted the broader possibilities of the technology for the design community.

The initial scope of the project in 2007 was to create an online forum specifically for the university’s industrial design students with a view to broadening their knowledge of what was happening primarily with different year groups within the industrial design programmes as well as the design community at large. This very quickly snowballed into a blog site with a large proportion of the site requiring, as is the nature of industrial design, the use of different types of visual media. A key problem that this highlighted was the rigid nature of the university’s intranet system UDo (University of Derby online).

Although the UDo system has been very effective at providing access to file sharing, course materials, timetables, library resources and professional legislative resources such as British Standards and Mintel market research information for a number of years, and the basic principal dates back as far as the 1960s and JCR Licklider’s thoughts on using networked computing to connect people in order to boost their knowledge as well as their ability to learn (Alexander, 2006). The communication element which was designed to allow students and staff to create and use module forums, Wiki’s and web pages was too rigid, confusing and locked down by the university to make it an effective platform for industrial design students to express and exchange creative ideas. Blogs however, could provide students with a way of reflecting on their own experiences while connecting with other students facing similar opportunities and challenges (Bryant, 2006).

Once the blog site was established, the aim was to use this initial stepping stone and build on the knowledge gained to establish a set of guidelines for the further development of the use of social software by industrial design academics and students to establish whether or not social software would be incorporated into regular teaching practices or remain as an additional aid to learning outside of the academics main remit.
3 RESEARCH METHODS

The research for this paper was conducted in several phases over the course of four years. Firstly a qualitative preliminary investigation was conducted by the industrial product design programmes academic staff and the author into existing industrial design specific social software sites in order to establish key elements that could be incorporated into the trial blog site.

Concurrent to this, in order to gain a more general understanding of social software application within the university, projects at the University of Derby were investigated with the assistance of key members of staff from different specialism’s, departments and faculties.

Further qualitative research consisted of formal and informal interviews carried out with staff to gather feedback on their views of social software application and use in higher education. Open style questions were used to start the feedback process, allowing the staff to express their issues and concerns rather than any preconceptions that the interviewer may have had. Key to this was the mixture of staff that had different goals and expectations for the use of social software due to their teaching, marketing and university widening participation backgrounds and focus.

3.1 The Blog Site

From these preliminary investigations a blog site was formulated in 2007 outside of the university UDo intranet system using the edublogs network that provided the freedom to include the industrial design content required as well as allowing the students to create and comment on some of the blogs content. This was not uncommon, as educators frequently choose dedicated applications or even web-based applications in the public domain as platforms for launching their social software initiatives (Schroeder, 2010) due to the rigidity of university intranet systems as previously mentioned.

The blog structure was designed to incorporate as many elements as possible required by the key stakeholders of staff and students but also maintain a level of simplicity and visual clarity. Further to this, early in the blogs development, the potential of the blog to be used as marketing tool to positively promote the industrial product design programmes was highlighted; therefore the blogs structure included pages for programme information. The site was also accepted by the university marketing department as a valid and useful marketing tool and was been given a link from the main website, this provided the opportunity to monitor the ‘click-through’ traffic and therefore gauge the blog sites marketing potential.
Quantitative research methods followed with a questionnaire being conducted to ascertain student opinion specifically of the blog site format and content as well as their thoughts on the development of social software within design education. Twenty students from a mixture of the three year groups of the industrial product design programmes were asked to complete the questionnaire, with the questions taking the form of closed multiple choice questions, closed 'yes/no' questions, scaled questions as well as some qualitative open questions where the students could reflect on their experiences and give their own thoughts and opinions.

3.2 The YouTube Channel

In 2008 a YouTube channel was created by the author initially to facilitate video content for the blog site however very quickly it became clear that this could be used as a vehicle to gain exposure for the programmes on a wider scale than the blog while at the same time directing traffic towards the blog site itself.

This created a shift in the type of videos that were being used and created on the channel for the blog. Whereas initially videos were of exhibitions such as the national graduate exhibition ‘New Designers’ where the programmes exhibited yearly, and student videos of individual projects had been the focus, now videos that showed the range, quality and scope of the work created at Derby were showcased as well as videos that showed the student experience such as the 1st year ‘egg drop challenge’ induction project. The traffic, hits and comments of these videos were then monitored in order to gain a clear understanding of where the future scope of social software’s deployment might lead.

3.3 Facebook Groups

With the blog site developing organically through student input, the research branched out further with the creation of industrial product design groups on Coroflot.com and Facebook. These groups and others that were created as offshoots were then monitored to determine if they provided greater scope, freedom and a platform for the creation of ideas rather than simply reporting on work already produced which had been the focus of the project thus far. The Facebook groups in particular provided an opportunity to see if there was any difference in the students use of a platform where they had complete ownership of the group as opposed to the blog site which they may have seen as an official element of the university as it had been introduced to them by their programme leader.
4 RESEARCH FINDINGS

The initial research into social software for the project in 2007 found that there was already a wealth of blogs, groups and media available to help stimulate and connect industrial design students and this has snowballed tremendously in the past few years. However, students find the amount of information daunting, question the validity of the information and find it increasingly difficult to separate the wheat from the chaff. The author realised that a key benefit of a programme specific blog would allow information to be collated by a recognised and local source and thus channelling and validating the information for students. As well as this, it is clear that a blog site, if presented in the right manner, could be extremely useful from a promotion and marketing point of view for the industrial product design courses. Further to this, a blog site can be used to demonstrate the passion of the staff and the students which would in turn facilitate communication with the wider design community.

4.1 University Projects & Academic Staff Views

Social software projects at the University of Derby outside of the industrial product design department gave an indication of how broad the application of social software was becoming in higher education. Not only was it being used to simply communicate ideas and information to students, but also to facilitate a student’s personal development planning (PDP), gain feedback from students on work placements via blogs, and as a marketing platform to promote the university to new students and keep in touch with the old ones via the Alumni.

John Angus, Director of Textiles and Teaching Fellow at the University of Derby headed up a project that concerned students making use of weblogs for personal marketing as part of the nationwide keynote personal development planning project which is designed to help students think about how their learning fits into their life and future goals. John stated that “I was thinking, what could I do to make PDP more palatable and useful to ADT students? Using multimedia weblogs as a vehicle for the projection of ideas, personal reflection and promotion seemed a compelling prospect”.

John sighted a number of key advantages of using blogs as personal promotion tools, including positive feedback from employers who can have instant access to likely candidates’ portfolios for employment opportunities as well as advantages for dyslexic and deaf students.

Emma Hyde, Senior Lecturer in Imaging in the Radiography subject area has been using blogs with her students for a number of years. Emma created her own blog and used it as a method of keeping in touch with her students while they were out on placement. “I created the initial blog and then gave my students access to modify the site and add their own pages, that way they could see what I was doing while they were off working at their placements. I just used to talk about what I had been doing, social stuff really, but it was quite useful I think because somehow it makes the students feel part of what’s going on and gets them fired up about the subject because they see that you’re really into it.”

Emma found that it was the students who then took it on and developed the concept, creating their own pages linked to the blog and feeding back information from their placements to the other students. “Because they were on placements, they were reflecting on their experiences, so other students gained a lot from seeing what the others were doing, so it helped in a way I suppose to create the group feel even though the students were scatter all over”.

The marketing department at the university were quick to capitalise on the use of social software which influenced the redesign of the University website. Many of the individual programme pages have had multimedia elements from around 2009, with YouTube videos and galleries of students work. Fiona Kirk, Marketing Manager for the Faculty of Arts, Design and Technology said in an interview conducted by the author that “96% look at the web first for information about courses before looking anywhere else, so our website is really important…we put a lot of effort into social network sites like Facebook, Bebo, MySpace etc.”

The marketing department also make use of Google technology with a pay per click campaign, not only allowing monitoring of hits, but using this technology to build profiles of prospective students movements within social software and other sites on the web to allow them to focus the university’s marketing more effectively, Fiona added “This monitoring of social software and Google has been getting us some real results so we are increasing the spend on this going forward.”
From these findings, it is clear that social software has, more often than not, been picked up by proactive members of staff and used for innovation in areas outside of their core teaching responsibilities, therefore it is clear that educators are instrumental in a social software initiative within higher education (Minocha, 2010). Little evidence was found of social software (other than the university’s own intranet system) being used to organise, deliver or respond to the core teaching practices (lectures, workshops, tutorials) at the university. This is echoed by wider studies that have shown that although many people consider the idea of, for example, delivering lectures remotely as part of the future of mainstream e-Learning, the reality is that this remains unlikely to happen in the foreseeable future (Kieslinger, 2008).

4.2 Students Views

When questioned at the beginning of the project in 2007, a surprisingly low ten out of twenty industrial product design students at the University of Derby used Facebook on a regular basis, with coroflot.com scoring a higher twelve out of twenty, possibly due to its promotion by the author during lectures. When questioned specifically about the blog site, eighteen out of the twenty students questioned had used the blog, with all twenty seeing the blog as a positive promotional tool for the programmes they were studying, with fourteen out of the twenty believing that the blog would have had a positive influence on their choice of university. Further to this, all twenty saw the blog as the best way to maintain contact with the University after they graduate.

A rating scale of the content showed that the most popular sections of the blog site where the more visual pages with images of ex-student work, exhibitions and examples of inspiring design. This was closely followed by the ‘links’ page and ‘Karl’s blog’. It could be deduced from this that students were using the blog as inspiration to feedback into their own work as well as benchmarking themselves against other students. This also correlates with the data from students that showed eighteen out of the twenty students questioned cited inspiration as the main reason for using the blog. Elements that scored less favourably were those more directly connected with assessment with only four out of ten students seeing discussion of assessment as a reason for using the blog, but fourteen out of twenty saw the blog as a good place to have discussion relating to group projects.

Students were upbeat about the content stating that it “Can help to inspire new and current students”. Interestingly, students also thought that they were more likely to comment on other students work via the blog than they would do face to face, which could provide an interesting opportunity for group assessment in the future. More generally, 65% of students believed that social software will change the way we learn in the future, however students were divided when it came to the question of developing social software into areas of assessment.

![Figure 5. Data collected from industrial product design students concerning social software use](image-url)
The subsequent YouTube channel in 2008 showed that YouTube usage for industrial product design students internationally still mainly centred on the social, non subject related antics of undergraduates. Perhaps fuelled by the desire this created to see undergraduate industrial design project work, the videos created for the research received over 17,000 hits in the first year. Whereas this highlighted the greater possibilities for video content for promotional purposes, it did not provide any data with regards to the possible use of YouTube and other video media sites for teaching and learning.

Moving into 2010, the use of Facebook groups in connection with their studies has grown rapidly amongst industrial product design students both at the University of Derby and the author’s current institution, Loughborough University. Students cited the reasons for this being the greater flexibility now offered by social software sites such as Facebook and Twitter for rapid communication and exchange of ideas due to their migration to mobile based platforms. A clear example of this was the use of a Facebook group for the creative development, management and coordination of the exhibition stand for the New Designers exhibition in London in July 2011. Students and Academic staff where able to exchange and develop creative ideas for the stand itself, organise reviews of the work to be displayed and even communicate with student’s onsite or on route to the venue. This was achieved with a fluid mix of text, photographs and video on the fly in a manner that was not possible with the blog site of a few years previous.

Use of social software has developed in this manner contrary to academics initial resistance to students expressing a wish in the blog development questionnaire to be able to contact academic staff outside of normal working hours, in fact staff and students now seem to be able to tap into what Clay Shirky describes as their cognitive surplus and enrich the learning process with every waking, industrial design related thought.

5 LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

The limitations of the research conducted for this paper are that most of the data collected was predominantly based on the blog site. This has been compounded by the segue and rapid development of students use of social software from the original research blog to Facebook and the like on mobile devices which the blog site could not be adapted to. As well as this a larger data collection, perhaps including a range of UK universities could have yielded greater insight into teaching and learning integration.

However, the limitations of social software are, it could be argued, yet to be discovered, and with developments such as Google + we could even see yet another paradigm shift, such is the nature of this rapidly developing phenomenon. In the time frame that this research has been conducted between 2007 to 2011, there has been a mobilisation of the technology that has rapidly altered and speeded up the social exchange of ideas and information between industrial design students and staff. These developments have been largely outside of core teaching and learning activity. Yes there have been e-learning developments with, for example, video casts and pod casts of traditionally delivered lectures and platforms such as iTunes U, but the real leaps forward are taking place outside of this.

Technologies and developments on the horizon might change the ‘outsider’ position of social software in higher education and bring it into core teaching with a jolt, initially in the area of computer aided design teaching. As large CAD software suppliers such as PTC and SolidWorks integrate social network inspired modules into their software for model sharing and cloud computing becomes more prevalent, perhaps the integration of social software into mainstream teaching practice will seem more fluid.

Industrial design education must always have an eye on what is cutting edge in the industry, and with notable design firms such as IDEO and product manufacturers Sony experimenting with idea sharing sites such as OpenIDEO.com and Openplanetideas.com the adoption and adaption of social software by the industry could and should lead to it becoming a core skill of a graduate industrial designer, and
technologies like augmented reality have huge potential to hook into this new type of anywhere anytime learning, particularly for a largely visual discipline like industrial design.

Figure 6. Augmented reality research currently being conducted at Loughborough Design School

6 CONCLUSIONS

In conclusion, it is clear that these new technologies still have a lot to offer higher education if applied to the correct aspects of the teaching and learning experience, and indeed the marketing and self promotion of both students and universities. Social software can enhance the student's experience and has already made the shift from communication to creativity. But there will always be a need for the more traditional elements of the learning process, whether or not these will be further enhanced by the integration of social software, only time will tell.

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