HUMAN COMPUTER INTERACTION (HCI) AND INTERNET RESIDENCY: IMPLICATIONS FOR BOTH PERSONAL LIFE AND TEACHING/LEARNING

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ABSTRACT

Technological advances over the last decade have had a significant impact on the teaching and learning experiences students encounter today. We now take technologies such as Web 2.0, mobile devices, cloud computing, podcasts, social networking, super-fast broadband, and connectedness for granted. So what about the student use of these types of technologies? Is there a blurring of the distinction between using them for academic purposes versus social use in their everyday lives? If so, what lessons can Higher Education learn from the fields of HCI and User Experience Design (UXD) about improving engagement through using familiar, intuitive and exciting interactions with technology?

One of the factors driving the development of new pedagogies associated with the use of technologies for learning is a concern that there may be differences between the way that students use technologies today for socialising, working and learning. This paper describes the experiences of undergraduate students within the School of Engineering and Computing at the University of the West of Scotland. Initially under the auspices of a UK Higher Education Academy (HEA) Digital Literacies project, groups of students have completed activity maps to show how they used modern technologies for educational and personal purposes, and whether Visitor or Resident behaviour is exhibited. An analysis of these maps may prove interesting showing which tools are most popular and which are niche-focussed in order to assess the implications for student engagement and enjoyment of learning.

KEYWORDS

HCI, Pedagogies, Internet Residency, Digital Literacies, Visitor, Resident

1. INTRODUCTION

The world we live in is becoming increasingly digital. Students are increasingly immersed in this digital world, in both academic and personal contexts, where they often have a wealth of data and information instantly available to them wherever they happen to be. Visitors use the internet as a tool, accessing information as required and logging off without leaving a trace, whereas Residents live a proportion of their lives online, using the internet socially and leaving a digital trace. But how do they use this in their learning, and how can this be improved? Students today are very much at ease with digital technologies such as laptops, smartphones and tablet and other mobile devices. Innovations and advances in technologies are changing the way that students learn and the way that they are taught as well as impacting on their everyday lives. The rapidly increasing technological advances that have taken place since the millennium have changed what we think of as literacy in terms of 'Digital Literacies'.

Many educational experts such as Prensky (Prensky, 2001) refer to the E-Generation or D-Generation who have mastered the digital competencies that are essential for students today. The pace of technological change is continuing to increase dramatically and the impact may be difficult to manage successfully. In a technological sense we are living in exciting time and Higher Education (HE) now has the opportunity to harness the potential to provide a better learning environment for students.

Rapid advances in digital technologies and the Internet, and the subsequent continual increase in use by students has been having a very significant impact on how students use these technologies, when they use them, and what they use them for. As digital technologies and literacies converge many different disciples such as Human Computer Interaction (HCI) and User Experience Design (UXD) have become particularly

relevant since how we interact with technology is becoming increasingly important if we want to ensure that student engagement and satisfaction is prioritised. In respect to higher education, JISC provides a definition of Digital Literacies as "those capabilities which fit an individual for living, learning and working in a digital society" and goes further than simply considering IT-related skills by including digital behaviours, practices and identities (JISC, 2014). In the early days of interacting with the Internet, Web 1.0 consisted mainly of information that was relatively static (read only) with limited user interaction. Users typically were looking up information or buying online (Visitor behaviour). Web 2.0 introduced more interactivity and the Social Web evolved to allow users to have 'presence' online (Resident behaviour – leaving a social trace) to connect with other people enhancing collaboration and connectedness through creating and sharing. Interactions evolved to become more personalised. Social media are primarily web-based communication tools enabling people to interact with each other by sharing and consuming information. (Moreau, 2016). Facebook and Twitter dominate at present, but mobile apps such as Snapchat are proving popular. Others include Linkedin, YouTube, Instagram, Pinterest, Tumblr, Vine, Reddit and Flickr. The Pew Internet Project's research on social networking in US (Pew, 2014) estimates that 46% internet users are "creators" posting original materials, 41% are "curators" reposting materials found on the web, 28% online adults use LinkedIn and 23% use Twitter. The type of tool used often impacts on behaviour, e.g. young people often use Tumblr people to re-blog from people they follow but are less likely to generate original content. As the rate of technological change increases the amount of time it takes for tools such as these to become mass market is reducing dramatically: television took 30 years to reach mass audiences, broadband took 3 years, in 2006 18-29 year old's social networking use jumped from 9% to 49%, and 28% of smartphone users use a social networking site daily, (Pew, 2014). The social web offers a world of endless information. A consequences may be information/cognitive overload leading to users becoming overwhelmed, constantly being immersed in an online world of constant interaction. Web 3.0 is the next stage of the evolution and is still evolving, encompasses elements such as Internet of Things, Semantic Web, Big Data, Smart/Intelligent Devices, AI, Virtual Worlds, mobile entertainment etc. - 'Connected Mobile Intelligence'. The shift toward mobile, semantic processing of data offers more personalised results. Some experts predict virtual and physical worlds will convergence with the web becoming an integral part of daily lives.

2. WHITE & LE CORNU'S VISITORS & RESIDENTS

"Using visitors and residents as a lens can help reveal underlying approaches and attitudes, which in turn, can help us support and engage the people we work with.", Dave White (White et al, 2011). In 2001, Prensky (Prensky, 2001) described the arrival and rapid dissemination of digital technology towards the end of the 20th century as a "singularity" - an event which changes things so fundamentally that there is no going back. He uses the term 'Digital Natives' to describe this new generation of student who are the first generations to grow up with this new technology, immersed in the computing environment to such an extent that that there are substantial implications for education. By contrast 'Digital Immigrants' as those not born into the digital world but who have adopted many or most aspects of the new technology - as they learn to adapt they retain 'a foot in the past'. In other words "older folk were socialised differently from their kids and are now in the process of learning a new language which uses a different part of the brain". David White and Alison Le Cornu who headed the HEA project '**Working with new forms of online practice in the disciplines: The challenges of web residency,** discussed in this paper, propose a continuum of 'Visitors' and 'Residents' as a replacement for Prensky's Digital Natives and Immigrants. **Visitors** are unlikely to have persistent profiles online projecting their identity, are concerned about privacy and identity theft, may view social networking as trivial and narcissistic, feel that if you have a 'real' social you wouldn't need online (visibility is the differentiator with residents - e.g. may use e–mail/Skype but wary of Facebook profiles), anonymous; activity invisible apart from databases running Web sites they use, think off–line: users (not members) of Web and don't value 'belonging online'. **Residents** live a proportion of their lives online, have blurred distinction between online and off–line, are happy to go online to spend time with others, consider they 'belong' to a community online, have a social networking profile, are comfortable expressing their persona online, view the Web as a place to express opinions where relationships are formed, use 'tools' but also maintain and develop a digital identity, have aspects of persona remain when logged off e.g. status updates,

sharing, posts etc., value online activity in terms of relationships as well as knowledge and blog posting is an expression of identity and a discussion of ideas.

The aim of the project was to encourage teaching staff to reflect on practices and consider strategies for integrating technology into their learning and teaching. The specific disciples under consideration include Arts and Humanities, Social Sciences, Health and Social Care, Science, Technology, Engineering and Mathematics (STEM). The original Visitors and Residents project was JISC funded (White et al.) and suggested that people behave in different ways when using technology, depending on their motivation and context rather than age or background hence producing a much wider model of online behaviour. In order to better understand online activities of students, they were asked to produce activity maps to describe their online activity on a graph with axis representing 'Visitor' to 'Resident' activity and 'Personal Use' to 'Study/Work' purpose. A typical map is shown in figure 1.
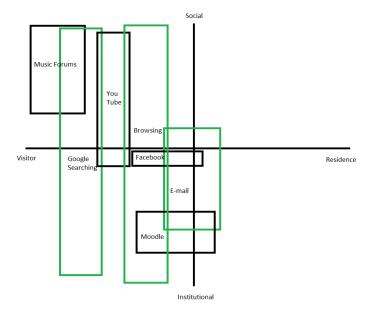

Figure 1. Student Activity Map

A number of strategies used in web residency were identified including: social media used to develop high collaboration, using 'open' practices to gain visibility and build reputation, building professional profiles and resources, and being 'Out on the Web'. Activity tended to remain mainly in 'Visitor' mode. This mode of activity was most common within this group. Some maps exhibit a flipped 'L' shape. This was slightly less common but nevertheless significant within the group and worth noting. The spread of activity for School of Engineering & Computing students is shown in Figure 2.
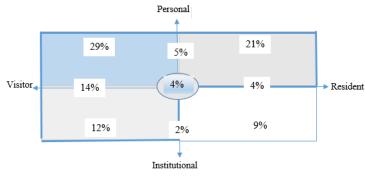

Figure 2. Activity Areas

Activity is primarily in the visitor mode (60.5%) with resident use at 39.5%. This would suggest that students are not particularly resident. Following discussions with the students, it transpired that many had privacy/security concerns which influenced this. Being knowledgeable is likely to have played a part in the decision-making process for them. An analysis of the tools which featured most in the activity maps of computing students suggests a fairly even mix of tools focussed around work and social activities. The use of Moodle is highest which is not surprising since students are required to use this to access online teaching materials and email is also mandatory. YouTube and Facebook are top of the tools used mainly for personal use, although there is some overlap with university work.

3. CONCLUSION

There are many influences on how students work, both from a personal and institutional perspective. Academically, the level of Internet Residency is likely to have a significant impact on learning, motivation and engagement, but this does require further study. This is likely to increase in importance as technological advances continue to rapidly increase in pace. Issues surrounding security/privacy and trust features frequently in discussions with computing students. Student awareness of the risks involved in 'resident mode' do appear to be paramount and ensuring privacy may encourage participation. Students already frequently create their own group learning spaces, some with minimal academics input. Providing individualised choice of tools, technologies and environments may benefit individual students and avoid overwhelming them – balancing information access, but avoiding overload, and encouraging appropriate time spent on tasks without overload. Computing/IT may attract particular types of students with particular learning strategies so it may be worth considering extending this research to other discipline. A better understanding of the implications of Internet Residency is vital to better understand the student psyche and online behaviour – the psychology of life in cyberspace.

Online presence is becoming increasingly important for students with a shift to the individual as distinct from the institution. The networks, communities and connections the student has are both academic and personal with a blurring of boundaries. The ubiquitous nature of the web allows opportunities for students to take learning and professional attributes beyond the institution to the world outside. By engaging the web in a more Resident mode, students may be in a better position to be able to use digital technologies to work, research, learn, influence and live in the ever-advancing digital world.

It may be useful when we consider the motivation of students as learners engaging with the web to pay particularly attention to learner-owned strategies and literacies – approaches to finding and sharing information, collaboration online and other techniques which students have developed in the digital world outside of their institutional environment – using tools and techniques that are familiar and that work for them individually are likely to be most successful in an educational context.

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