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Meals and Snacks: The Changing Flavour of
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Straddling the Continuum between Three Course Meals and Snacks: The Changing Flavour of Knowledge Creation and Dissemination

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Abstract: The rapid spread of the World Wide Web since the early 1990s and the more recent burgeoning of Web 2.0 technologies have had a fundamental impact on the ways in which knowledge is created and disseminated. This in turn has major implications for institutions whose core business is focused on the creation and dissemination of knowledge. Universities are only beginning to come to terms with this paradigm shift, and how it affects teaching, learning and research. Traditionally, knowledge in universities has been produced by individuals or small teams of specialists, and disseminated in specialised discipline-specific journals and books. This specialisation is an important part of the virtue of academic knowledge, as it allows for highly focused and in depth knowledge to develop. However, the emergence of the Web has provided fertile ground for a wider sharing of knowledge on the one hand, and a much more rapid dissemination of knowledge on the other. This paper will explore the impact of these changes on the conceptualisation of knowledge, and it will argue that this paradigm shift in knowledge requires universities to adapt to a diversification of the dissemination of knowledge. In short, universities need a presence across the knowledge continuum, rather than sticking to three course meals alone.

Keywords: Academic Knowledge, Web 2.0, Net Generation, Knowledge Creation, Knowledge Dissemination

From Elite to Mass: The Changing Position of Universities

THE SUBHEADING OF this section deliberately uses the word *position*, rather than *role* of universities in the current higher education context. Universities find themselves in a *position* where they are required to change, surrounded by a wider context that is rapidly changing around them. The fundamental issue however is that the *role* of universities is changing from what it traditionally has been. The change from 'elite' to 'mass' has happened some time ago and is not going away, but tradition dictates that most universities still struggle to come to terms with the implications of this fundamental shift (Taylor 2001; Laurillard 2002). As Annand (2007, p. 1) argues,

University education is still generally conducted within pre-industrial age organisational structures. As a result of their inability to evolve the predominant cohort-based classroom structure to more cost-effectively meet the aspirations of burgeoning worldwide populations for higher education, universities may see substantial organisational changes imposed on them over the next decades by external forces.

Overall then, it seems “clear that growing demand for higher education cannot be met within a controlled paradigm like the present, conventional university system” (Annand 2007, p.7). Given this context, it is vitally important for universities to drive

required changes from within, rather than losing control over the process. As Laurillard (2002) has argued, “we need to rebuild the infrastructure that will enable a fit between the academic values we wish to preserve and the new conditions of educating larger numbers” (p. 4). Such academic values go to the heart of what we think the role of universities should be and include valued traditions such as: “to inspire and enable individuals to develop their capabilities; to increase knowledge and understanding for their own sake; and to serve the needs of a knowledge-based economy” (Laurillard 2002, p. 3). Hager and Holland (2006) are a little more specific in making reference to current debates about the purpose of university education and “how to develop well educated persons who are both employable and capable of contributing to civil society” (p. 4). The reference to employability is particularly relevant here, because this has traditionally been seen, within academia, as a ‘side effect’ of a university education, rather than one of its central objectives. However, employability is increasingly becoming a reason for students to choose one university over another, and thus a marketing tool for universities, which raises a wider question of what employability means in a contemporary context.

Barnett talks in this respect about an “age of super-complexity” in which “the curriculum becomes a vehicle not for knowledge or skill acquisition but for living effectively in the world” (2006, p. 53). He connects this to a wider concern with the purpose of universities when he argues that “higher education



needs to undergo a fundamental shift, not exactly to cast off concerns either with knowledge or with skills but to place at its centre a new concern with being as such" (2006, p. 51). As Taylor (2001) puts it, "in the present context, change is the only constant!" One of the primary goals then is to equip students with the tools to be effective in an age where uncertainty is a fundamental ontological condition, or in other words to furnish "a human wherewithal that is adequate to incessant contestability and challengeability" (Barnett 2006, p.58). This has important implications on a number of levels. Firstly, it throws into question traditional conceptions of what we mean by knowledge, and how that relates to information. Secondly, it implies an 'attitude' that should be fostered in students, rather than a set of discipline-specific skills. The latter in turn changes the role of tertiary educators from 'knowledge providers' to mentors and 'facilitators of knowledge management' (Kehrwald 2005; Hinchliffe 2006).

The concepts of information and knowledge are often confusingly conflated. For example, we are frequently told that we live in an 'information age' and need to be prepared to engage in a 'knowledge economy', where the two essentially mean the same thing. However, there is an important difference between them, with implications for higher education. The 'information age' simply suggests that there is a lot of information 'out there', especially since the rapid spread of the Web as an information site. However, access to information in and of itself is not necessarily useful. As Goldhaber (1997) has argued, "information would be an impossible basis for an economy, for one simple reason: economies are governed by what is scarce, and information, especially on the Net, is not only abundant, but overflowing". In this context of information overload, it is not so much the information itself, but what people do with that information that becomes primarily important. In other words, making the information valuable, and converting information into knowledge, requires additional steps and skills. It requires the ability and critical thinking skills to recognise the potential of information to be synthesized into knowledge, and furthermore the ability to use the available avenues to disseminate that knowledge and draw attention to it, for "attention, at least the kind we care about, is an intrinsically scarce resource" (Goldhaber 1997). Thus, the ability to convert multimodal information into knowledge that captures attention requires literacies on a number of levels (Huijser 2006), which narrow understandings of 'information literacy' often fail to capture. Apart from traditional and multimedia literacies, it increasingly requires network literacies, "the ability and the impulse to effectively and ethically manipulate a range of technologies to communicate and collabor-

atively construct and share knowledge" (Burgess 2006, p.107). Thus, "the student needs not only the facts but also an understanding of the context in which that information makes sense" (Dreyfus 2001, p.34), and moreover the ability to construct and effectively disseminate knowledge from abundant information. There is little question that these types of literacies will become ever more urgent, especially in the current Web 2.0 context, and they thus require an urgent response from the tertiary education sector.

Web 2.0: Implications for Knowledge Creation and Dissemination

Collectively, Web 2.0 technologies constitute a major shift in the way the Web is used. More importantly from an educational perspective, Web 2.0 technologies offer major opportunities for the way in which they *could* be used. This is not to say that the technology necessarily drives these changes in a technologically-determinist sense, but rather that educators could potentially seize on the ways in which these technologies are already being used by 'the Net Generation' (Oblinger & Oblinger 2005), and appropriate and guide this usage into particular directions. This is rather different than arguing that this generation is completely distinct from previous generations (Prensky 2001) and therefore needs a completely new approach. Historically, new technologies have always generated considerable hype and accompanying calls for complete overhauls of education systems (Dreyfus 2001). In the case of Web 2.0 technologies, some of the excitement is certainly justified. However, there is a need for caution and careful consideration of the implications of such technologies for the ways in which knowledge is created and disseminated. Dreyfus (2001) points out in this respect that much of the transformation driven by the Internet in general constitutes a transformation in the "*method of communication*" (p. 30, original emphasis), which is only one level of engagement with information, and does not necessarily equate to effective knowledge construction and dissemination.

According to Batson (2008), "the most significant fact about Web 2.0 for educators is that key functions and intelligence have moved or are moving from the desktop to the Web, and by doing so they have changed". He goes on to stress the social implications of this movement. "Those functions and intelligence are no longer just about personal productivity, but about the social context for information- what *other* people think about the information" (Batson 2008, original emphasis). De Byl and Taylor (2007) focus on this social context by referring to a "Web 2.0 ethos, centering on the idea of a collective intelligence which evolved from hyper-linking, web services, platform-independent software, re-usable and re-mixable content and, above all, user participation"

(p. 110). The two central concepts here are collective intelligence and user participation, as these have seriously blurred the boundaries between knowledge management and dissemination. As Batson (2008) notes, “if we accept that all learning is social, Web 2.0 may be more in step with learning reality than the book or the PC”. Clearly, the development of a Web 2.0 ethos is to an important extent driven by the affordances of the technologies themselves. Whether it is a wiki, a blog, a photo sharing site like Flickr, or social network sites like MySpace and Facebook, the ways in which each of these is structured invites certain uses, which are all social in nature. However, once the technologies are there, the ways in which they will actually be used, and the extent to which they will be used, are highly unpredictable. The onus is on universities to clearly define what these technologies *could* be used for. In other words, rather than simply reacting to what the net generation does in a Web 2.0 environment, it is important to formulate what we *want* them to do with the information in this environment. Not only do universities need to take some ownership over the information generated in a Web 2.0 environment, they need to actually teach students how to create knowledge from this information and disseminate that knowledge in effective ways.

Batson (2008) argues that,

Web 2.0 is becoming a tipping point for creative energy in higher education’s use of technology, moving its center from the campus desktop or server to the Web. Web 2.0 moves information technology from the stage of managing and reinforcing the status quo in higher education (e.g. course management systems) to the next stage of providing a millennial re-structuring of the philosophical understanding of knowledge.

This again points to the earlier mentioned *position* of universities from which they need to re-define their *role*. Taking ownership over this process allows for example for an injection of an ethical dimension, where the purpose of knowledge dissemination is allowed to take centre stage. Drawing on Kierkegaard, Dreyfus warns for example that information for its own sake poses the potential danger of information consumption without any specific purpose and without the need to act on that information. “The accumulation of information postpones decision indefinitely” (Dreyfus 2001, p. 77). The advent of Web 2.0 technologies has only amplified this potential for ‘inaction’, as the information is generated at ever increasing speeds and in increasingly fragmented bite-sized chunks. While more traditional mediating technologies like television and radio, are characterised by persistence, replicability, and invisible audiences, “networked publics [such as those

engaging in social network sites] add an additional feature- *searchability*- while magnifying all of the other properties” (boyd 2008, pp. 126-127, original emphasis). In other words, the proliferation of information ‘snacks’ and the focus on the act of searching itself can potentially allow for skipping of the main course: knowledge. If the objective is meaningful knowledge creation, universities need to equip students with the etiquette required to sit down for a three course meal.

While Web 2.0 technologies offer exciting opportunities, and while they are undeniably net generation-driven, they can at the same time be perceived as a threat, and indeed they frequently are. The way in which university educators deal with Wikipedia for example, exemplifies this anxiety. While some allow their students to use Wikipedia as a millennial source of information, and thus part of the net generation’s ‘natural environment’, others ban their students from using it altogether (Frean 2008). Still others adopt a more considered approach. Brabazon argues for example that “students live in an age of information, but what they lack is correct information. They turn to Wikipedia unquestioningly for information” (cited in Frean, 2008). “The younger generation has a level of comfort with technology but not necessarily an intimate understanding” (Goodall 2008). The trick is to teach them how to use it properly, and in a critical way. “Google is filling, but it does not necessarily offer nutritional content” (Brabazon, cited in Frean 2008). The onus is then on educators to take control and responsibility in teaching students to be dynamic and critical thinkers within their own authentic online spaces, rather than decrying such spaces and risk becoming irrelevant. The former approach is most productive in that it does not condemn the technology that the net generation has taken ownership of, nor does it blindly celebrate it, but instead it attempts to exploit its educational possibilities by taken a certain amount of control over such technologies.

If we accept that Web 2.0 technologies are blurring the lines between teachers and students, and that both become co-creators and ‘producers’ of knowledge (Bruns 2008), we are still faced with a major dilemma in terms of assigning value. In other words, what constitutes ‘worthwhile’ knowledge in this context? And what constitutes meaningful learning? As Barnes, Marateo and Pixy Ferris (2007) note, “the dilemma arises from pedagogical strategies that effectively conflate knowledge with mere information management while failing to tap into the positive potential of the Net Geners’ orientation towards learning”. Farmer (2006) expresses a similar concern in his discussion of educational blogging: “blogs undoubtedly support sustained discourse, but a question asked by many engaging with the techno-

logy is the extent to which this discourse is reflective, critical and purposeful” (p. 96). This goes to the heart of how we define the role and responsibilities of educators in a Web 2.0 context, which in the final analysis becomes an ethical question, because it needs to be finely attuned to not only what students are attracted to in this context, but also what they need to learn. Arguably the most important skills are the ability to express oneself appropriately and the ability to differentiate between different modes of communication, to make appropriate judgements about available information, and the ability to find relevant information. As Zimmerman and Trekles Milligan (2007) argue,

Students must develop critical thinking skills and literacy in online communication, since those who possess well-developed communication skills across platforms, along with problem-solving skills and technological capability, will be the ones who excel in today’s digital world- and tomorrow’s. It is our task as educators to help our students gain those skills.

The 2008 edition of the Horizon Report predicts that “the next generation of social networking systems- social operating systems- will change the way we search for, work with, and understand information by placing people at the centre of the network” (p. 26). This in turn implies a “growing need for context through which we can interpret and evaluate the depth of a person’s social connections” (p. 26). Again, the challenge for universities is provide students with the tools to engage with such a context in meaningful ways, rather than merely snack on it.

Generation V? The Challenge of Aligning Skills with Outcomes

In recent years, there have been numerous attempts to come to grips with and define a new generation of students, the most prominent of which are Prensky’s (2001) concept of Digital Natives, as opposed to Digital Immigrants, and more recently, Oblinger and Oblinger’s (2005) concept of the Net Generation, based on Tapscott’s (1998) earlier formulation. The argument in both cases is that “today’s students think and process information fundamentally differently from their predecessors” (Prensky 2001). The notion of the Net Generation is part of an attempt to come to grips with fast changing technology and the related changes in a generation that has grown up in an environment saturated by technology. With regards to education, it is an attempt by a generation for whom information technology was something to be ‘learned’ or ‘taught’, to understand the implications of dealing with a new generation of students for whom technology has been an integrated and ubiquit-

ous part of their everyday environment. As a result, the Net Generation does not think “in terms of technology; they think in terms of the activity technology enables” (Oblinger & Oblinger 2005, p. 2.10). This has major implications for the way in which they are taught or should be taught, because their resulting characteristics differ significantly from those of earlier generations. This forces educational institutions to think through different ways to address this generation in an educational context.

Oblinger & Oblinger (2005, p. 2.5) define the net generation’s characteristics as follows:

- Ability to read visual images- intuitive visual communicators
- Visual-spatial skills- related to their expertise with games
- Inductive discovery- better learning through discovery rather than being told
- Attentional deployment- ability to shift their attention rapidly between tasks
- Fast response time- ability to respond quickly and expectations of rapid responses in return

In addition, they are digitally literate, connected, immediate, experiential and social (p. 2.5-2.6). These characteristics imply a major shift in the way students learn or could potentially learn, and it is thus vital for educational institutions to engage with these characteristics in learning design, curriculum design and approaches to teaching. However, there is a need for caution on a number of levels. While Prensky’s (2001) central question: “should the Digital Native students learn the old ways, or should their Digital Immigrant educators learn the new?” is clearly a deliberately provocative question, it has the unhelpful side effect of reinforcing an either/or binary, by simplifying both the category of ‘student’ and ‘teacher’, thereby ignoring not only an increasingly diverse student population but also closing the door on the possibility that skills associated with Digital Natives could be acquired at a later stage, or at least appropriated in different, yet meaningful ways (Huijser 2006). The notion of the Net Generation similarly implies a clearly defined age group, while more recent versions such as Generation V (Havenstein 2007) suggest that this may be flawed. The V stands for Virtual, and Havenstein (2007) posits that this generation is “made up of people from multiple demographic age groups who make social connections online- through virtual worlds, in video games, as bloggers, or in social networks”. While this is largely a marketing construct in much the same way as Generation X was constructed in the 1990s (Sternberg 2002), it does draw attention to the restrictive nature of neatly categorising people according to age. More significantly however, empirical re-

search is beginning to question the usefulness of some of the characteristics outlined above.

Prensky's argument is largely positional in nature and not based on specific empirical research. It is also squarely positioned in a technological determinist framework, where "technology is regarded as an autonomous force that is somehow independent of human society and acts on it from outside" (Buckingham 2006, p. 9). More recently however, empirical research is beginning to complicate the hype associated with the Net Generation (Kvavik 2005; Cortese 2007; Kennedy et al. 2008). While these studies confirm that the Net Generation has grown up in an environment 'saturated' by technology, they also suggest that there is much variation in terms of types of use, associated skills, and preferences for use in education. A recent Australian study by Kennedy et al. (2008, p.108) shows that "many first year students are highly tech-savvy. However, when one moves beyond entrenched technologies and tools (e.g. computers, mobile phones, email), the patterns of access and use of a range of other technologies show considerable variation". For example, while they found a significant growth in students' general use of instant messaging, blogs and podcasting, they also found that the majority of students rarely or never used these technologies for study. And importantly, "the transfer from a social or entertainment technology to a learning technology is neither automatic nor guaranteed" (Kennedy et al. 2008, p.119). This echoes other recent studies which "suggest that most children's everyday uses of the internet are characterised not by spectacular forms of innovation and creativity, but by relatively mundane forms of information retrieval", which Buckingham refers to as the "*banality* of much new media use" (2006, p.10, original emphasis). Again then, the onus is on the university sector to clearly define a coherent strategy to align the already existent skills of Generation V with learning objectives and outcomes based on providing tools for meaningful knowledge creation and dissemination suited to a Web 2.0 context and beyond.

Conclusion

There is no doubt that information and knowledge are changing fast, in terms of both their creation and dissemination. The 2008 Horizon Report talks in this respect of "collective intelligence", which is defined

as "the knowledge embedded within societies or large groups of individuals" (p. 23). This type of collective intelligence breaks with traditional models of a more finite conceptualisation of knowledge, in the sense that it is continuously re-shaped and re-defined, and less individualised. Web 2.0 technologies allow for the creation of "collective knowledge stores", where the "data are not organised in the traditional sense, and indeed it is in part the unstructured nature of collective intelligence which allows it to be created and mined in ways that often lead to multiple levels of new insights" (Horizon Report 2008, p. 23). The challenge to come out of this for universities is twofold: on the one hand it requires universities to address the question of access, and on the other hand it calls for strategies to teach students to engage with these new insights in meaningful ways. To confront this challenge requires experimentation with educational applications of Web 2.0 technology based on sound pedagogical principles, in combination with research and thorough evaluation of such applications. While Generation V is certainly not a uniform group and while it does not represent the entire student population, this is no reason to ignore Web 2.0 technologies, for ignoring them not only risks becoming irrelevant to Generation V, but is also walking away from education's role and responsibility in shaping a meaningful and relevant future for those seeking to develop themselves in an increasingly networked world. In short, possibilities should be capitalised on, and be informed by changing characteristics that students bring to the learning environment, but at the same time they should carefully take increasingly diverse needs into account and have a clear focus on desired outcomes. Many universities are currently still struggling with this challenge, which is exemplified by the fact that in many universities "the development of web-based initiatives is not systemic, but is often the result of random acts of innovation by risk-taking individual academics" (Taylor 2001). What is required then is a systemic whole-of-institution approach to confront the challenges outlined in this paper, where the ultimate objective is to provide students, regardless of which generation they belong to, with the tools and skills they need for a nutritious educational three course meal, rather than being limited to bite-sized information snacks.

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