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Educating for digital futures: What the learning strategies of digital media professionals can teach higher education

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Educating for digital futures: What the learning strategies of digital media professionals can teach higher education

This article explores how universities might engage more effectively with the imperative to develop students' 21st century skills for the information society, by examining learning challenges and professional learning strategies of successful digital media professionals. The findings of qualitative interviews with professionals from Australian games, online publishing, apps and software development companies reinforce an increasing body of literature that suggests that legacy university structures and pedagogical approaches are not conducive to learning for professional capability in the digital age. Study participants were ambivalent about the value of higher education to digital careers, in general preferring a range of situated online and face-to-face social learning strategies for professional currency. This article draws upon the learning preferences of the professionals in this study to present a model of 21st century learning, as linked with extant theory relating to informal, self-determined learning and communities of practice.

Keywords: informal learning, digital media, professional learning, communities of practice, social learning

Introduction

As much as higher education is needed in the 21st century, it is in some ways less relevant than ever before (McWilliam, 2009). By and large, higher education institutions are still the lumbering monoliths of the 19th and 20th centuries (Schejbal, 2012). Historically, employers could be confident that graduates of the elite university system were suitable for professional occupations, regardless of the institution or the content of the degree program, but this is no longer the case. As less and less of 21st century work involves routine tasks, universities are now tasked with hard-to-teach high level 21st century meta-capabilities such as self-regulation of learning, knowledge construction and synthesis, creativity, adaptability, information management, critical

thinking, and digital competence (Plomp, 2013), along with professional level disciplinary skills for the information society.

Traditional didactic university teaching approaches are also much less relevant to students than even a decade ago. Learning on demand is now ubiquitous (Dabbagh & Kitsantas, 2012). For many people, digital and networked technologies are now a constant source of just-in-time information and answers to questions, and a conduit to share information with others as well. When this is coupled with the fact that today's students have many work and life commitments outside university and tend to be much more time-poor than those of previous eras, weekly attendance at lengthy on-campus lectures has become, for many, a tiresome chore.

To meet the capability needs of the knowledge society, as well as the learning preferences of students, university leaders are aware of a growing imperative to reinvent their structures and processes, their curricula and pedagogic practices. In addition to this, of course, higher education is itself subject to the sweeping influence of ICTs. We are seeing the beginnings of these educational transformations. Face-to-face learning has become just one of a number of delivery modes available. Effective 21st century higher education means that face-to-face modes are used when pedagogically appropriate to, and best aligned with, the learning outcomes involved. Workshops and tutorials are starting to become peak learning experiences, rather than regular, taken-for-granted (and sometimes less than optimally attended) experiences in the student calendar. Other learning experiences and content material are available online. However, we are still experimenting with combinations and 'blends' of modes, platforms, and learning activities for different contexts, learners, and subject matter areas.

In designing higher education systems and learning experiences that are responsive to the learning needs of the future and exploit the possibilities offered by ICTs, this article makes the argument that universities can learn much from the existing professional learning strategies of people who are already successful in 21st century fields, such as digital media.

The digital media sectors include “those... involved in production, creation and publishing of experiential and informational media that are currently being produced, delivered, or experienced in digital form” (Higgs, Cunningham, & Pagan, 2007), such as multimedia and software development, visual effects and animation, computer and online games, mobile content, and digital film/ television. These professionals work at the leading edge of ICT transformation in the knowledge society, and they are therefore in a position to make the most effective use of digital professional learning opportunities, in addition to availing themselves of more traditional, face-to-face learning options. The professional learning challenges and strategies of those in digital media are highly relevant to other types of knowledge workers because all professions have increasing access to online learning opportunities. They all need, to a greater or lesser extent, to acquire digital and meta-level capabilities, and to learn and acquire knowledge via ICTs.

In this study, I ask: (1) what do digital media professionals see as their main learning challenges in the 21st century? (2) what are the various roles of formal and informal education in their professional learning strategies at present? and (3) how do they prefer to acquire needed capabilities? I will use the answers to these questions to envision potential structures, processes and roles for higher education that better correspond to 21st century professional learning needs.

The study

In-depth interviews were undertaken with eight successful Australian digital media professionals working in micro businesses and SMEs. Interviewee 1 was the owner of a digital and interactive marketing firm; interviewees 2 and 3 were the chief technical officer and lead developer in an IT applications and digital publishing business; interviewee 4 was the owner of a digital graphic design micro-business; interviewee 5 was director of an online marketing and communications business; and interviewees 6-8 were lead designer, programmer and general manager of a games development firm. Six of the eight held formal university qualifications of some type (albeit in a wide range of disciplinary areas within and beyond digital content); another had partially completed a university degree in a digital field. Responses to questions about the interviewees' professional capability needs, and the roles of higher education and informal professional learning were transcribed. The data were analysed thematically, using Grbich's (2012) approach which reduces the transcripts into meaningful groupings, allowing the participants to 'speak for themselves' through the data.

Learning challenges: A rapid rate of technological change

From the preceding introductory section, it is unsurprising that the strongest thematic grouping that emerged from the interviews related to the need for continual learning and relearning because of the sheer rate of change in the digital media industries.

A strong dialectical relationship became apparent from the interviewees' commentaries around the learning imperatives arising out of the continual changes in the digital media industries, summarised as 'more learning opportunities vs less opportunity to learn'. This dialectical relationship has resonance both for the learning of professionals in other fields, and for universities grappling with strategic reinvention in

the face of a digitally-afforded information deluge and pedagogic revolution. This dialectic is a direct outcome of the fast moving and dynamic nature of the digital media industries, where technologies are developed and redeveloped constantly, along with the proliferation of information and information sources of varying quality and credibility available online.

...in technology you've got to be always keeping up with things and what's going on and there's so much, and you don't want to spend ten hours a day trawling stuff and nobody has time to do that.(i03)

...the sheer rate of change that our industry suffers is the benefit and the curse of working in the industry. It's the benefit because it's exciting and it's change and it's opportunity... but it's also the curse because it's really hard to invest time (to learn) things which aren't going to have a commercial payout ... (until) more than twelve months later, or maybe not at all.(i01)

The role of university in the professional learning of digital media professionals

In the main, the interviewees were ambivalent about university courses as preparation for professional life in their fields. Higher education was described by several interviewees as having relatively little value-add beyond what one described as “really expensive credentialling services.”

Another commented on the convenience of a degree as a preliminary job applicant filtering mechanism, but was otherwise skeptical about the actual content of university courses:

...when we're filtering job applicants, a degree is a really easy way to filter someone. While I don't think the coursework that we were doing was appropriate to me or was going to help me get employed, I needed the qualification. (I03)

Others used degree qualifications mostly as an indication of strong commitment to a chosen career:

So a number of times I've had people tell me that the information they were learning was useless and so they dropped out and they've learnt a lot more on their own and when I've hired them I've found that they haven't had the application to focus on any one job and they tend to bounce around. So completing a course shows me that they have a level of discipline to actually see something through. (I08)

Interviewees pointed to major disjuncts between university course provision and the needs of industry - particularly a perceived lack of interest in technological currency, and slow curriculum renewal processes, as major criticisms of higher education courses. These comments confirm the findings of Haukka et. al's (2010) surveys of digital games employer and graduates' skill requirements, where respondents indicated pervasive and significant disciplinary skill deficits in the industry.

They typically don't teach the things that are actually really necessary. I think their curricula need a bit of looking at. Because it seems to be quite practical but possibly missing all of the design elements that are required. (I06)

One of the disadvantages that the universities have is it's a very slow process as you know changing curriculum. So it's pretty much three years ... to actually go through the approval process and changing the curriculum and working it through the system itself. (I08)

However, interviewees acknowledged that university might be a good venue for the development of various important generic/ transferable capabilities, such as critical thinking, communication, and even metacognitive skills, such as learning how to learn. The interviewees' preference was to hire graduates from courses other than those focusing on digital content, particularly the arts and humanities.

So unless you're just a coder and you're a rock star, okay well you need some vehicle that's going to help you actually relate to people. College can do that well, arts, humanities you know you have to think broadly. (I05)

... they're really learning how to learn. You know I've proved to myself that people who graduate are usually better, make better employees. (I08)

However, capabilities required to learn informally in a fast moving industry were reportedly absent from university courses. Interviewees commented that they had to teach themselves where and how to avail themselves of the most up-to-date information, and how to use it effectively at work.

You ... work out where to go and how to learn it yourself. Starting out, people you work with will often show you where to go online... where the latest information is. You get to know where to look after a while. (i02)

Short courses for professional learning in digital media

Certain formal education elements were still deemed useful for digital media professional learning, particularly short courses for targeted technical and digital skill development. These courses tended to be delivered by fast-turnaround, agile industry providers rather than larger vocational or higher education providers. Interviewees indicated that in some instances they preferred non-accredited courses, as these tended to be more current and up to date than accredited ones.

I've done other courses around the digital media, using social media for marketing, and a variety of marketing related courses too ... I found that usually the best way to keep current is to do these short courses and they tend to be very, very current in their information. (I08)

Informal learning strategies for professional learning in digital media

Informal learning strategies were the preferred approaches to acquire the majority of

required knowledge and skills, both for ongoing *and significant elements of initial* professional learning. Informal learning has no ‘curriculum’ per se, and tends to be opportunistic, unstructured, pedagogically agile and far more self-directed than formal learning (Eraut, 2004). In an industry impacted by constant change, informal learning is clearly both essential and ubiquitous.

The interviewees had a strong preference to employ social informal learning strategies. While a few interviewees reported using online tutorials or engaging in other forms of individual learning (such as Lynda.com online courses), the vast majority of the informal learning strategies employed by the interviewees relied on social relationships in either face-to-face or online modes. Face-to-face learning strategies tended to be employed along the lines of a ‘community of practice’ (Wenger, 1999), involving active relationship building and maintenance between individuals within and outside the organisation with similar interests. Communities of practice involve repeated and extended reciprocal interactions, and are thus fairly time and energy resource intensive – but in this study were central to professional currency, career development and ideation, and were seen as very valuable.

The face-to-face learning communities ranged from involving fairly structured, involving regular group meetings and with specific aims, to casual, as needed and fairly ad hoc modes of operation.

There’s the ruby group ... ‘I’m having this problem with some rails code that I’m working on’ and someone might say ‘oh yeah I know how to solve that’ and go for a beer or whatever. There’s no direct benefit to the company but there’s a benefit through people going and for them personally. (I02)

Online modes of social informal learning were less likely to employ a community of practice model, but rather a distributed learning network of professionals and other

interested people (including users as well as producers), in which interviewees may not even know the people with whom they were interacting, or know them only slightly. The interviewees used informal learning to obtain on-demand, 'just in time' quick-turnaround information and skills via social networking sites, obtaining information quickly and then passing it along.

...the majority of social interaction in this industry that occurs on a daily basis happens digitally. It's through Twitter, it's through Facebook. Whenever I read something interesting I tweet it. I've only got a couple of hundred followers. It's micro-commentary, it's not big discussions. (I01)

...that's usually the blogs or following people on Twitter or Google plus or whatever. It's really about peer learning or educating each other. It's about going, "oh I know this guy, he's in this community, I'll follow him and he might post interesting links from his friends", so it all disseminates. (I02)

This form of social learning was generally much less time and energy intensive than the community of practice model. In fact, interviewees commented that a major reason that online social learning was so appealing to them was that it was often largely passive and required little effort.

Why I like something like twitter is because you can just follow it passively. You don't have to be on it, you can check it twice a day and if anything interesting comes up you know with the people you follow, they've done the hard work for you. And you're doing the hard work for them too, it's reciprocal and you can just passively follow along and find stuff and if it's important enough it will be re-tweeted or somebody else will find it and you'll notice it more than once. (I02)

This reported passivity is strongly at odds with conventional wisdom about 'good learning', in which interaction and active engagement with co-learners and pre-determined learning material is emphasised in order to build depth in knowledge structures and enhance sense-making (Garrison & Cleveland-Innes, 2005). The type of

online social learning undertaken by the interviewees maximizes the volume of information that can be processed. Under this learning approach, knowledge building occurs in small increments, with maximum task relevance and efficiency. However, the passive learning experience is also imbued with what might be thought of as ‘agentic possibility’, in self-regulatory learning terms (Martin, 2004) – that is, the individual has over time carefully curated their social sources of information, to include those that cover topics of interest most effectively, and that they can trust to be credible. If a post or tweet is of interest, it can be a launching off point for further, active searches for information and/or enquiries of the social network.

Interviewee 2 described the development of their online learning network thus:

You figure out how to do it by trying it, through necessity... because you’re doing something and you need to know right away. You ask colleagues, you search... eventually you get to know who to follow and what to pay attention to.(i02)

The informal approaches to learning undertaken by the interviewees exploit a sophisticated metacognitive skill set. This learning how to learn is about building the capacities for continuous learning, unlearning, and relearning. The interviewees’ responses indicated the need for a continual construction and demolition of knowledge structures, but also pointed to a fast-moving critical capacity to (a) select where to go online to learn and how; (b) filter data for credibility and usefulness; and then (c) synthesise it with existing knowledge.

...then figure out for yourself whether it’s worth pursuing and learning more about that. But it’s essential that you’re doing continual learning and improving of your own skills, working out what’s worthwhile all the time. (I04)

Self-motivation and curiosity, and an immediate sense of task relevance underpinned the interviewees’ professional learning processes in this study. Intrinsic interest helps

ensure depth of learning in both work and higher education contexts, as do immediate links and contingencies to tasks and projects (Rajagopal, Joosten-ten Brinke, Van Bruggen, & Sloep, 2012). Again, this is at odds with the ‘traditional’ university student experience, in which the curriculum is often delivered in a decontextualised manner to students who have little sense of why they are doing courses or where their experiences might be leading them (Organisation for Economic Cooperation and Development, 2002). Under the traditional model, students are expected to learn pre-packaged curricula ‘on trust’ that they will be of use to them at some point in the future.

Discussion: 21st century pedagogies for 21st century capability development

The findings presented here reaffirm that the university maintains an important place in professional learning, particularly for the acquisition of generic/transferable capabilities such as critical thinking. However, as disciplinary knowledge proliferates and professional work becomes both more specialised and digitised, there is significant impetus and also opportunity to advance what we do. In doing this, we need to consider new pedagogic affordances of digital technology in the educational space; the abundance of all kinds of learning resources on any topic freely available to use and share online; and recent significant research-based developments in what is known about the practices and conditions necessary for effective teaching and learning (Mazoué, 2012).

In traditional educational frameworks, explicit and declarative knowledge is the focus. Universities package this knowledge into static curricular units and deliver them. The repackaging approach is fundamentally consistent with codifying overt knowledge, delivered in a decontextualized situation (classroom).

Recently, we have seen moves away from this towards more ‘connected learning’ (Ito et al., 2013) involving ICTs and rich media, social learning, and more authentic

forms of assessment. The findings of this study affirm these moves, and seem to suggest that we may need to go further if we are to be relevant and current, and embrace the development of professional capability in the digital world.

Much of required skill and knowledge base required in digital media (and indeed many 21st century careers) is tacit, procedural, and/or metacognitive, and is therefore best learned in a situated and authentic context rather than a decontextualized classroom. As long established in the work integrated learning literature (Billett, 2009), knowledge without a basis in authentic experiences remains inactive and the learner can lack a sense of its relevance. Learners may lose motivation to learn; they may not attain real depth of learning; and they can have difficulty transferring what they have learned in a decontextualised classroom situation to a contextualised, authentic one when they eventually encounter one (Brown, Collins, & Duguid, 1989; Lee & Hung, 2012).

In order to maximise the potential of authentic learning, work integrated learning could be embedded throughout a multi-year course experience, rather than being a stand-alone capstone course, as often occurs now. Further, work integrated learning should be infused into the overall course experience. Under this model, authentic contexts, activities, and assessment maximise student engagement (Barron, 2006), and are combined with guidance from expert modelling, mentoring, and a learning process of what Lave and Wenger (1991) call 'legitimate peripheral participation'. Under this model, students begin with simple and low-risk tasks that are nonetheless useful and legitimate. Through these peripheral activities, beginning students gradually become more advanced contributors. For instance, games design students work with expert games designers, programmers and artists, who model the practices of games development. These students interact with expert designers, as well as other members of the project team (including more advanced students) who understand the processes of

games development to varying degrees and in various ways. Students gradually move from novice roles to becoming advanced contributors, and they do their tasks become more central and the expectations are higher. Under present models of 'capstone' work integrated learning, movement from novice to advanced contributor is often not possible, simply because of the need to fit the experience into a single 14 week semester immediately prior to course completion.

<insert figure 1 about here>

Situated learning occurs within a community of practice, as per the interviewees' professional learning strategies in this study. Students are in regular meaningful (online and face-to-face) contact with professional experts, more experienced digital media students, and students at the same level of capability as themselves, as well as teachers who can support them with learning how to learn and making sense of their learning experiences (Shreeve, 2007).

In this model, learning is harmonised with formal learning. While relatively few studies have examined the optimal interplays between formal and informal learning (Barron, 2006), the best hybrid learning appears to occur in a way that is driven by the interests of the student, and involves pursuit of knowledge and skills wherever the best venue for that knowledge may be acquired. Learning is a combination of core curricula coupled with opportunities to branch off to other interests in different contexts (Cobo, 2013). Students can avail themselves of short online courses of study for technical skill development (the Lynda.com model may be useful here), attend face-to-face workshops and seminars for skill development, or even acquire important underpinning disciplinary 'legacy knowledge' (such as principles of programming; narrative theory in film; neuroanatomy; accrual accounting; history of fashion; theories of educational psychology) within a more traditional face-to-face or online classroom situation.

In the model, the acquisition of capability occurs in cyclical manner between authentic activity and the ‘classroom’ (whether physical or virtual), with teachers scaffolding students’ processes of reflective metacognitive learning how to learn and emergent meaning making (Nonaka & Toyama, 2003). In contrast to the ‘sage on the stage’ transmissive model of education, 21st century academic teachers and other information literacy educators (such as librarians), must support learners to filter, compare, contrast, and re-contextualise learning strategies and experiences, and identify new sources for relevant knowledge acquisition, which is what they will then do for themselves continually throughout the rest of their lives. In figure 1 this process is depicted by the red line that moves responsively between the various zones of the students’ learning community.

In order to be truly relevant in the 21st century, universities need to become hubs of online and face-to-face wider distributed knowledge networks (related to the notion of a “learning ecology” (Siemens, 2005)) encompassing industry, professionals, users, and university researchers, depicted in the outermost ellipse in the model in figure 1. Siemens (2005) defines an ecology as a dynamic, rich, continually evolving, system that reacts and evolves in response to both external and internal changes. If developed and maintained appropriately, the university learning ecology becomes the conduit and knowledge integrator for the latest university and industry generated research and practice trends, that students and professionals alike can access as needed (emulating the ‘passive learning with agentic possibility’ strategies of the digital media professionals in this study). Learners can forage within the ecology for task-relevant knowledge and information, and derive meaning from it themselves, with the support and facilitation of teachers.

However, in order to make this happen, universities must stop gatekeeping knowledge, and start facilitating access to it, supporting the development of critical capabilities required to filter and synthesise information effectively. Universities must realize that they are no longer the holders of special, advanced professional knowledge and skills, except for their own bespoke research functions. They must build strong partnerships with industry stakeholders, other universities and training providers, and their own situated communities of practice, to avail themselves of the most up to date information and knowledge. In short, they must become ‘meta-universities’ -- overarching, accessible, empowering, dynamic, global, communally constructed frameworks of open materials and online platforms (Tapscott & Williams, 2010). The universities with the most direct pipelines to the latest global industry and academic research knowledge in specific and targeted areas of excellence (Christensen & Eyring, 2011), that can in turn supply this knowledge to learners in the most efficient and accessible way for them, will be the most successful in the learning and teaching sphere.

Conclusion

A key challenge for universities is to build programs that are based on the development of highly relevant 21st century skills, and to base pedagogies on what we know about effective professional learning, both on and offline. The present study used the learning challenges and strategies of digital media professionals to explore what students in the information society should be learning, and how they learn best in the digital age. The key challenge for universities moving forward is not pedagogic, however – it is about organisational culture, and reinventing the way we do things to better meet the needs of learners in a new age.

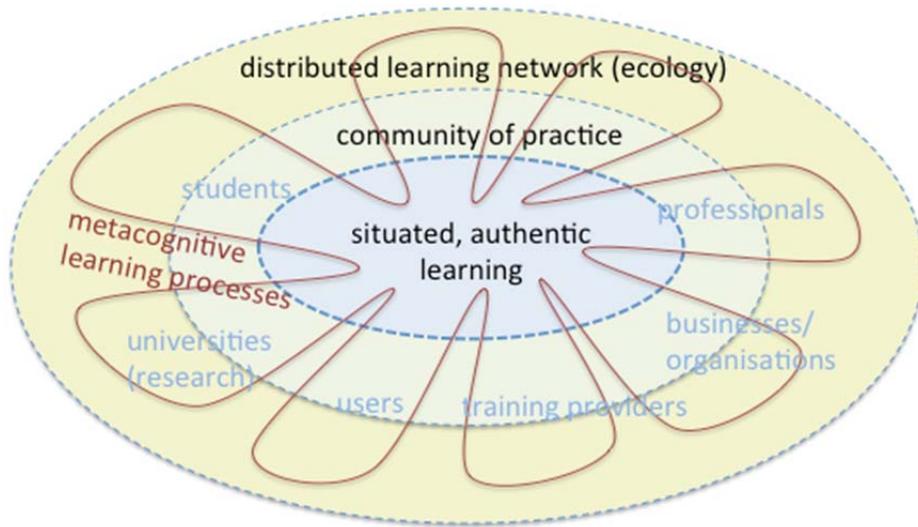


Figure 1. A model of the university as hub of the distributed knowledge network.

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