# Digital identity and e-reputation: Showcasing an adaptive eLearning module to develop students' digital literacies

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How and why is one's digital identity and e-reputation so important? This question underpins the *"Digital Identity: Making Your Mark!"* adaptive eLearning module which empowers students to critically engage and evaluate the impact of their e-reputation and the power of Social Media on their academic, professional and social lives – a vital digital literacy. The online adaptive module was developed by an Australian university cross-disciplinary team of academics, educational designers and librarians with the Australian-based global adaptive e-learning company, *Smart Sparrow*. The module's aim is to engage students via transformative personalised eLearning activities to explore the impact of their digital identities, e-reputation and the power of Social Media on their lives. Students explore how their e-reputation across various Social Media platforms can influence their social, academic, and professional spheres by interrogating their Social Media use and what constitutes responsible and ethical "digital citizenship". This paper showcases the module's design, innovations, and user evaluations that highlight its significant impact and success encapsulated in student voices, "Very eye-opening and engaging!" and "It taught me how to be a better person online!".

Keywords: digital identity, digital literacies, adaptive learning, e-reputation, digital citizenship.

## Vast horizons – digital identity and the power of e-reputation

Why does one's e-reputation matter and why is developing digital literacies so vital? Michael Fertik, co-author of *The Reputation Economy* (Fertik & Thompson, 2015) suggests that "online reputation is more important than money or power" (Lewis, 2015). Consequently, evolving digital literacies matters because they form the "capabilities required to live, work and learn in a digital world" (JISC, 2011) – our e-reputations (digital reputations) matter more than ever. Australian universities, as well as in the UK and elsewhere globally, are addressing digital literacies and employability frameworks on their agendas as strategic university priorities given the importance of Social Media in students' lives (see Beetham & Sharpe 2013; Coldwell-Neilson, 2017; JISC, 2011 2014, 2015; La Trobe University, 2016; QUT, 2015; Salisbury, Hannon, & Peasley, 2017). Not only do university students need to be able to use and communicate via Social Media, they also need an awareness of the professional, ethical and legal aspects, and digital responsibilities and consequences across private, professional and academic spheres, which often intersect, blur and cross over. These capabilities are about developing "digital citizenships", and universities have ethical imperatives and responsibility to empower students towards *responsible* digital citizenship (NMC Horizon Report Higher Education Edition, 2017; Ribble, Bailey & Ross, 2004; Ribble & Miller, 2013). Digital literacies and the impact of e-reputations are critical gaps across the Australian higher education curriculum, albeit that there are emerging digital literacy student resources emerging from Australian universities. However, these resources tend to be linear, sequential, based on generic, mass user design and not personalised (e.g. Libguides platform used in Australian libraries and web-based e.g. QUT (2015)). The development of the *Digital Identity: Making Your Mark!* online module not only addressed a significant gap across the Australian Higher Education sector in terms of innovative content, learning design, interactivity and learning analytics, but in its use of an adaptive personalised eLearning platform. This paper unfolds to showcase the development of the module in terms of context, digital literacy framework, adaptive learning platform, pedagogical underpinnings; then moves to briefly give a flavour of the content and design innovations; and concludes with a snapshot evaluation of the module's impact and outcomes.

### Synchronising our swimming – project background

The *Digital Identity* module brought together the vision of academics, researchers, librarians and educational designers working with an adaptive eLearning company, *Smart Sparrow*, to develop, design, share and evaluate educationally informed content and design. The module development informed new models and strategic partnerships for developing innovative eLearning solutions between universities and external companies. It was

one of three modules developed to be shared across two [Australian Innovative Research Universities](#) (IRUs), which could be adopted and adapted by other interested stakeholders. The *Digital Identity* module was part of a larger IRU Digital Readiness initiative between La Trobe University and James Cook University in Australia. In 2016, it was deployed as stand-alone and integrated options across: a 2nd year journalism course of 255 students at La Trobe University, 5 postgraduate AusAID coursework international student programs, 25 Hallmark students at La Trobe, and 744 undergraduate students at JCU – collectively over 1,000 students. The module was designed to develop students' digital literacies.

## Moorings – developing digital literacies

This project addresses the use of Social Media across these three spheres so students can reflect, assess and shape their e-reputation by understanding the power of Social Media. The project's aim is to develop students' Digital Literacy capacities – which are "the capabilities which fit someone for living, learning and working in a digital society" (Beetham & Sharpe, 2013; JISC, 2011, 2014; see also NMC Horizon Reports Higher Education & Library Editions, 2017), under the overarching Digital Identity and Wellbeing component (Figure 1). There are other valuable digital citizenship frameworks such as Ribble, Bailey and Ross (2004) which encompass additional broader aspects. The module raises students' awareness about how to use Social Media to shape their e-reputation. The module prepares students to be "work ready, world ready, future ready" based on La Trobe's (2015) *Digital future: Digital learning strategy 2015-2017,* shows students how to lead more impactful digital lives, and uniquely provides adaptive eLearning personalisation.
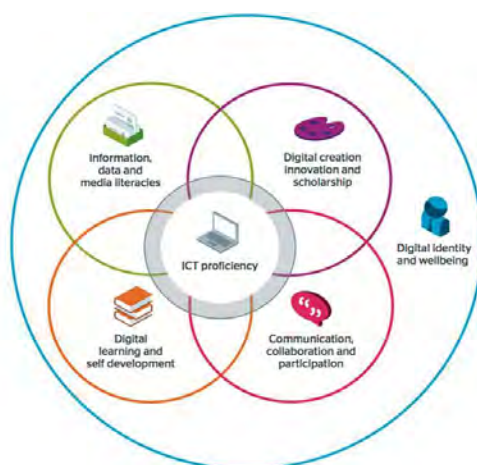


**Figure 1. JISC (2014, 2015) digital literacy framework**

The Intended Learning Outcomes (ILOs) of the lesson are for students to understand how to use Social Media effectively to promote their academic achievements, network professionally and socially, and for employability and entrepreneurship by:

1. Understanding the power of Social Media in creating their e-reputation
2. Exploring their digital identities across professional, academic and social spheres
3. Analysing, developing, promoting, and protecting their e-reputation.

## Lighthouse outlook – adaptive eLearning platform *Smart Sparrow*

Adaptive personalised learning is a prominent feature of 21st Century investigation with the Bill Gates Foundation funding and promoting development of adaptive personalised learning solutions (Tyton Partner Papers, 2015, 2016). *Smart Sparrow* (a global award-winning company) is an emerging pioneer in developing engaging, adaptive eLearning modules across Australian universities and was specifically chosen by our strategic university digital leadership at the time through a collaborative IRU Digital Readiness Project. The project aimed to pilot an adaptive eLearning platform where online digital literacy modules were to be developed and shared across Australian IRUs (Innovative Research Universities).  Recent interest in adaptive eLearning has seen Deakin becoming the first Australian university to partner with *Smart Sparrow* on a university-wide scale to deliver adaptive enhanced STEM education (Deakin University, 2016). The *Smart Sparrow* interactive adaptive platform allows for dynamic (real-time) personalised eLearning experience. This means that the module reacts to a user's input and provides customised feedback and specific activity branching

pathways to adapt to user needs, interests and behaviours. For example, each user can progress at a faster or slower rate through the module, skip sections, proceed to easier or harder material, or retrace their steps – adaptivity and personalisation *par excellence* that moves beyond mass user design and website transmission platforms.

## Pedagogical anchoring

The project's learning design is based on reflective and critical (digital) pedagogies (Beetham & Sharpe, 2013; Brookfield, 2005; Selwyn, 2015), learning analytics (Buckingham Shum, 2014), and adaptive personalised eLearning (Tyton Partner Papers, 2015, 2016). Dynamic learner analytics provide actionable insights into student performance to analyse learning and enrich learning designs and activities.

Underpinning the project is the value of adaptive personalised eLearning (Tyton Partners, 2015, 2016) "to make a significant contribution to improving retention, measuring student learning, aiding the achievement of better outcomes, and improving pedagogy" (Tyton Partners, 2015, p. 4). The benefit of adaptive learning provides "more sophisticated, data-driven" personalised learning experiences for students. The adaptive platform with its learning analytics enriches the learning experiences of students through strategic university digital future strategies and digital literacy frameworks (La Trobe University, 2015; Salisbury, Hannon & Peasley, 2017) to inform evidence-based learning design.

The content pathways are personalised for each student – for example, those who know more can accelerate through and skip certain sections and content while providing more support activity pathways and tailored feedback for novices. The module is narrated vibrantly and inclusively through Tash (a university student), and is accessible (e.g., transcripts for videos and alternatives for drop and drag exercises), with creative, personalised interactive multimedia. Throughout, each student reflects, engages, evaluates, and responds to adaptive individualised activity pathways.

# Exploring shorelines and seashells – Content and design innovations

The module has novel interactive activities around Social Media and employability across social, academic and professional spheres to increase student engagement and motivation. As an overview the adaptive eLearning platform provides real time dynamic learning analytic dashboards. *Smart Sparrow's* adaptive eLearning platform is based on Intelligent Tutoring Systems and Educational Data Mining – Learning Analytics – to enable the authoring, delivery and analysis of personalised eLearning. There are significant issues around digital engagements (Selwyn, 2015), data mining, learning analytics, machine learning, and algorithmic education that are beyond the scope of this paper. But we touch on learning analytics towards the paper's end. The value for investment is high as the module is easy to duplicate, adapt, and deploy from fully online to blended modes across disciplines, or as a standalone. The module is cloud-based, and integrates with a university's LMS (Learning Management System). Duplicating the module and enrolling thousands of students is easy. Customisation is possible because of modular design. Overall, the technology can adapt teaching to individual learners' desires and needs. The module provides students with an individualised dynamic interactive eLearning platform where not only do they gain insights about themselves but staff get to know more about their students' digital literacies.

The module is innovative in its flexible, adaptive, personalised learning; inclusive, accessible design; content; and transdisciplinary design approach. It is user-paced and narrated through a student voice. It engages users via rich interactive multimedia and adaptive personalised activities and videos. This video clip highlights some of these (https://youtu.be/0uvAxq-yTzg). Innovation has been a hallmark of this module on multiple levels from the multidisciplinary design team, adaptive platform, engaging multi-textual and multimedia content, empowering reflective and critical pedagogical design, vibrant and engaging aesthetics, to student narrator voice (see Figures 2 & 3).

The content is underpinned by reflective, active, critical transformative pedagogies to explore the power of Social Media and how to use it effectively and responsibly. The JISC Digital Literacies Framework (JISC, 2011, 2014, 2015) elements of *communication and collaboration*, c*areer identity and management, media literacy* are interrogated to empower students to realise the impact of their e-reputation and how to showcase their university achievements and social networks for their careers.
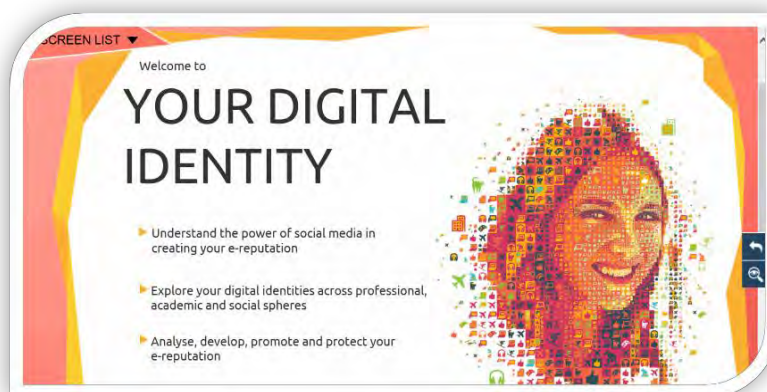
**Figure 2.** *Your Digital Identity* **welcome screen with Tash (student narrator)**



**Figure 3. Module outline of the three sections**

A sample of the thought-provoking activities and titles are outlined below (also see Figure 4):

- *Have you Googled yourself lately?*
- *Can Social Media really get you that dream job?*
- *Can Social Media really get you fired?*
- *Social Media and entrepreneurship*
- *Social Media platforms and uses across social, academic and professional spheres*
- *What type of Social Media user are you? (Prolific, Selective, Curious, Indifferent)*
- *Analysing and selecting images for Social Media profiles*
- *Digital detective, visibility, privacy and surveillance*
- *Social Media, ethics and legal aspects*
- *Evolving your Social Media Manifesto.*

Expanding on the reflective activities, some examples are outlined below:
- *How important is Social Media in employment?*
  Students rank employer responses about Social Media, and are then presented with results from a survey so they can compare their opinions against survey results. This either affirms or challenges their views.
- *Student Social Media user profiles*
  Based on their Social Media engagement and use patterns determined by responding to questions about time spent, platform choice, and purpose (e.g. across academic, professional or social spheres), students are placed in one of 4 profiles quadrants (Curious, Prolific, Selective, Indifferent) and provided with customised advice and content.

- *The nature of Social Media*
  Students respond to questions about Social Media definitions, limits, scope of Social Media and are provided with customised feedback based on their responses.

Users engage with the platform with real-time response feedback and the user data is stored on the platform. However, the module also has an optional notepad where students can take notes during the lesson and save these to email themselves at any point. The lesson culminates in students evolving their *Social Media Manifesto* as well as downloading a list of references and digital resources under these categories:

1. Social Media and You
2. Social Media and Your Career – Your e-Reputation
3. Social Media and Protecting Yourself Online.

Whilst the module is self-paced, it can be completed in around an hour. Students can spend as long as they wish on each section and return to activities, as well as proceed more quickly if they wish. Interactive design elements range across multiple choice selection, reflective answers, drag and drop exercises, matching activities, surveys, user Social Media profiling, media image selections, active short video viewing to name a few. The range of activities provides variety and elements of surprise. To experience the online adaptive *Digital Identity* module at the user end, *Smart Sparrow* have created a modified open link module demonstration that does not require a log in, without the full display and the full analytics of the platform (which can be seen in the licensed versions) at https://aelp.smartsparrow.com/learn/open/ib9ywd25.

## Diving deeper – Evaluation and impact of the adaptive eLearning module

This section provides a snapshot of the evaluation feedback responses from deploying the module in a 2nd year journalism course on Social Media (255 students). Ethics clearance was obtained and feedback was anonymised via the online survey questionnaire at the end of the module (Survey Response for this cohort = 70). The feedback survey instrument was embedded within the *Smart Sparrow* platform screens with an audio clip of Tash inviting the students to complete the feedback survey. The survey instrument had 3 sections each with three to four questions using a 5-part Likert scale covering: value, engagement, and satisfaction in terms of the intended learning outcomes. There were another 7 open ended questions, as outlined in Table 1. A brief survey snapshot analysis is outlined here (due to word limit), more detailed thematic analysis will be forthcoming.

**Table 1: Feedback survey instrument questions**

| Value | Engagement | Satisfaction | Open Ended |
|---|---|---|---|
| The lesson changed my views on using Social Media as a tool for my career. | I enjoyed the activities in the lesson. | I found the lesson challenging. | What has the lesson taught you? |
| I am more aware about the relationship between Social Media and my e-reputation. | The lesson was relevant to me. | How interesting did you find the lesson? | Was the lesson relevant for you? Why/Why not? |
| I would like to explore more Social Media platforms which I haven't used. | I found the lesson engaging. | How valuable did you find the lesson? | How could it be made more or less challenging? |
| | | Did you find the overall look and feel of the lesson appealing? | What did you like/dislike about the design? Why? |
| | | | What improvements would you suggest? |
| | | | Other Comments |
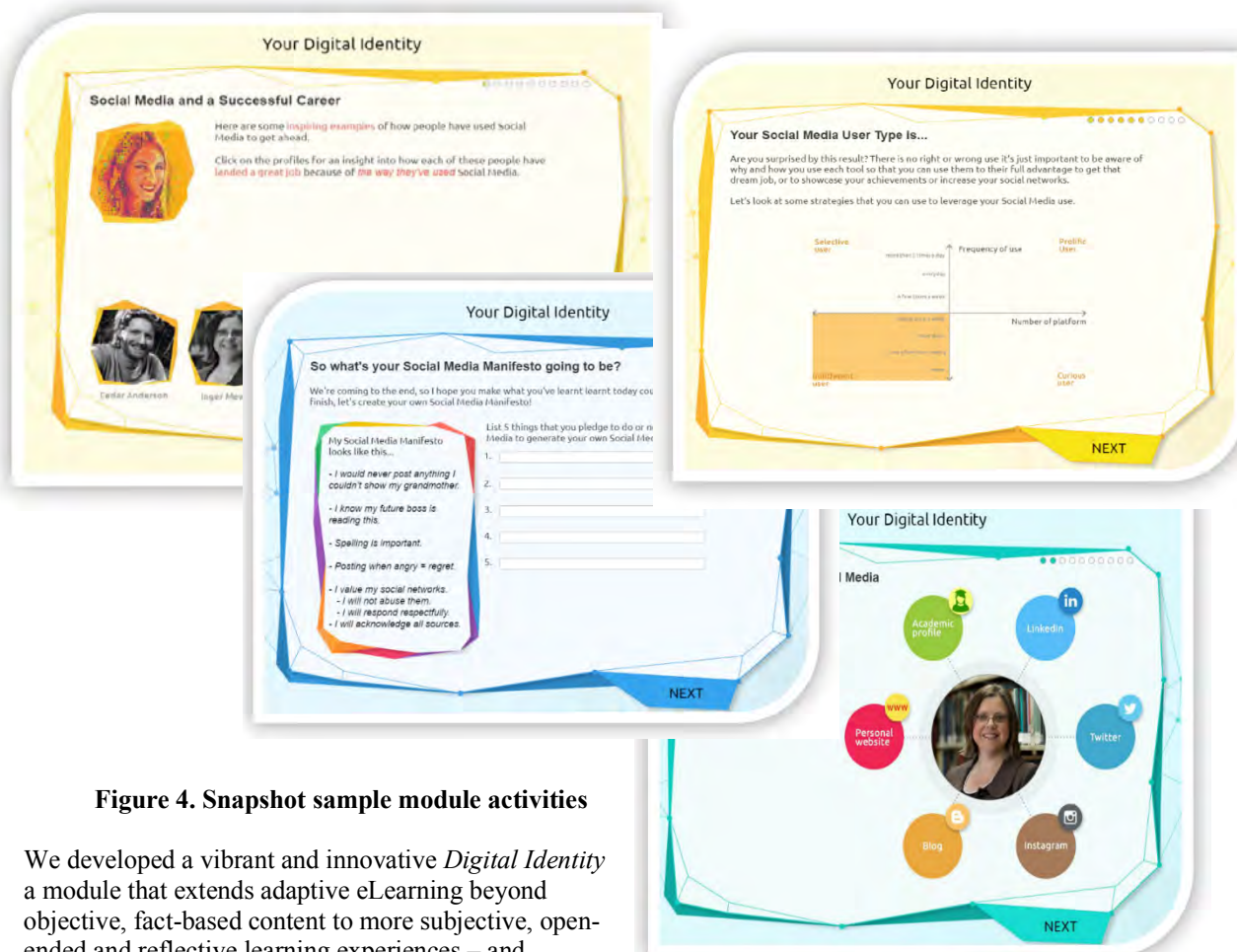
**Figure 4. Snapshot sample module activities**

We developed a vibrant and innovative *Digital Identity* a module that extends adaptive eLearning beyond objective, fact-based content to more subjective, open-ended and reflective learning experiences – and students were overwhelmingly positive about it. Learners appreciated and valued the vibrant, interactive, and reflective module, saying: "Very eye-opening and engaging!". Student feedback showed that the objectives of understanding the power of Social Media in their lives were achieved through the impact of Social Media on their e-reputation and its impact on employability. Students valued the educational aspects, vibrancy, interactivity, self-reflections and videos, as well as analysing various Social Media platforms. Student evaluations show that students valued the module and achieved insightful awareness of the impact of their Social Media and e-reputation. Students were taken by the vibrancy, interactivity, self-reflection, provocations and insights of the module, saying: "Well done on the creation of a fantastic resource – Great lesson!"

Student feedback showed that the module successfully highlighted the importance of judicious Social Media use. In an end-of-lesson survey (Tables 2 & 3), 76% of student respondents agreed or strongly agreed that "The lesson changed my views on using Social Media as a tool for my career." 84% agreed or strongly agreed that "I am more aware about the relationship between Social Media and my e-reputation."

**Table 2: Student percentage response on module's value**

| Value | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| Q1 The lesson changed my views on using Social Media as a tool for my career. | 16 % | 60 % | 22 % | 1 % | 1 % |
| Q2 I am more aware about the relationship between Social Media and my e-reputation. | 16 % | 68 % | 15 % | 0 % | 1 % |
| Q3 I would like to explore more Social Media platforms which I haven't used. | 10 % | 46 % | 32 % | 11 % | 1 % |

**Table 3: Student percentage response on module's engagement**

| Engagement | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| Q1 I enjoyed the activities in the lesson. | 7 % | 54 % | 29 % | 7 % | 3 % |
| Q2 The lesson was relevant to me. | 9 % | 71 % | 16 % | 4 % | 0 % |
| Q3 I found the lesson engaging. | 12 % | 58 % | 25 % | 5 % | 0 % |

Tables 2 and 3 highlight the effectiveness of the module, and 90% of the 255 enrolled students in the 2nd-year journalism subject on Social Media completing the Digital Identity module (further individual question completions and time spent on each of the questions/tasks are possible through the learning analytics platform and will be explored in future publications). 17% described the lesson as insightful, 75% as positive, and 8% provided comments about future directions.

Clearly, there was significant awareness raising (55%) about the impact of Social Media (7%), cautions (13%) and carefulness (20%) with which it would be used given that the module was "very educational" (5%). This feedback is significant given that these were already relatively Social Media savvy 2nd year journalism students. In terms of the design, students liked the vibrancy of the module and the look and feel in terms of its colourfulness (22%), design interactivity and navigation (37%), mood, look and feel (24%), Interactivity (2%), as well as issues or concerns (15%). Overall, 80% of students responded with agree and strongly agree that the look and feel of the lesson was appealing. The student voices encapsulate what they gained in value, engagement, and awareness raising:

> To be a better person on the Internet and well done on the creation of a fantastic resource
> Great lesson! Very eye opening and engaging!
> How informal and easy it was to process, and the examples of other people's accounts.
> Explained each aspect of Social Media apps
> Log out of Facebook before I go out clubbing
> The variety of the content shown
> Glimpses at other people's Social Media profiles
> Social Media manifesto
> To always remind myself that my Social Media life can be seen by Future Employers and potential thieves
> It taught me how to use Social Media, to be more aware of what I post and to be more careful if I want to have a professional job
> The lesson taught me the scope and reach Social Media have. While it may be difficult to hunt me specifically down on the web using just my name (I (un)luckily have very common names), eventually someone from work or uni, or a friend of a friend will see what I've posted and it can get back to people in higher positions, or hiring positions. This could have a huge impact on my career moving forward. It is also somewhat worrying that typing my name into google or Facebook will bring up so many other people. This could cause a case of mistaken identity when potential research partners or employers do a Social Media search for me and come up with the wrong person. I may need to modify my privacy settings so that just the right amount of my content is accessible to people that I don't know, so that it will affect my career and social life positively.
> To be even more vigilant of what I share and limit my presence to positive output that may influence my career path.
> Overall I found it enjoyable.
> Good lesson, very relevant and important for any Social Media user to take part in.

Consequently, given the highly positive impact and successful outcomes of the module's implementation, the *Digital Identity* adaptive eLearning module was invited as a Demo showcase amongst the *Smart Sparrow* suite of Demos (see *Digital Identity* case study description). Since then it has been showcased by Deakin University in their systemic uptake of the adaptive eLearning *Smart Spa*rrow platform. Globally, it has been highlighted in the NMC Horizon Report Library Edition (2017, p.45): "A team of academics, instructional designers, and librarians leveraged Smart Sparrow's Learning Design Studio to develop an adaptive, personalized online module that helps students understand the power of social media in crafting their digital identities. Lessons include evolving privacy policies and career influence". Further impact for staff (internal and external) were:

collaborative design informed by positive student response; transdisciplinary team benefits; and sharable and sustainable platform content for use across Australian universities. Significantly, national impact and recognition of the module were achieved in being one of 4 finalist in the 2017 *Australian Financial Review Higher Education Awards* (Dodds, 2017) in the Learning Experience category from across 100 plus applications, and being invited as 1 of 8 national exemplar showcases at the *Smart Sparrow* Learning Innovation Summit (2017) in Melbourne.

## Lighthouse beacons – safer harbours and swimming in open oceans

Whilst the success of the module has been overwhelming in how students have responded, the experience of coming together as a transdisciplinary team to evolve a module across two universities did provide for interesting and challenging 'rocks'. One vital aspect is the issue of Copyright across universities and the choppy ocean of the complex arena of digital and Social Media Copyright. We modified our seashells (content) and selections accordingly, and sought permissions for content reproduction and linking out to platforms rather than embed full screen shots for example. We also found that raising awareness about accessible and universal design was a significant contribution to the authoring tool designers. Significant to any such development is sustainability in terms of where does the adaptive module belong when it is created across various departmental affiliations? Who updates it and is responsible for it when there is multiple authorship? What of licensing costs and who pays for these? And significantly, who are its leaders and promotors (internally and externally)? Another pressing concern is that of the platform's learning analytics and the issues surrounding user data and visibility and where the data resides (i.e. internally on a university server or on the external digital technology servers). Whilst the focus of this paper is on the broader conceptual learning design and affordances of adaptive learning, learning analytics increasingly are embedded into technologies and ethical disclosure should be required. A limitation on our part was that we might have mentioned this at the start of the module with a consent option for every user. However, we were specifically covered through Ethics approval and only using the data of students who consented to provide feedback survey evaluation. The module indeed contains a section about the hidden aspects of user data use. Buckingham Shum (2014) and Prinsloo (2017) so aptly remind us of the ethical concerns of data for whom, by whom and for what purpose, which should be guiding principles.

Overall, we see the raising of students' awareness of their 'digital footprint' and 'making their mark' as crucial empowering aspects, as Fertik reminds us, "Reputation is becoming more valuable than money or power" (Lewis, 2015). He also cautions us that "as we move from an era of big data to the more considered and perceptive big analytics, the amount of information you give away about yourself – your 'digital footprint' – increases exponentially every time you go online. Fertik thinks it is only a matter of time before each of us has a reputation score, just as we now have a credit rating" (Lewis, 2015). This is echoed by 'futurist Marina Gorbis' who predicts that "we are moving towards … a new economy where your web influence and social connections will matter just as much as the money in your bank account" (Lewis, 2015). Being aware of surveillance aspects and understanding what this entails is a vital digital capacity. We see this happening already in China with the rise of the Social Credit System to rate the trustworthiness of its citizens which started in 2014 and is to become fully implemented nationwide by 2020, where an individual's digital data are algorithmically used to provide a credit score that socially stratifies a person's e-reputation and controls access to services in all sorts of ways (Brehm & Loubere, 2018; Zeng, 2018). Fertik's predictions are already upon us: "Fertik sees a day when numerous decisions will be made about each of us – about our lives and careers, even our dating prospects – based on reputation alone. … Soon, however, computers could become more involved in recruitment or what Fertik calls 'decisions almost made by machine'" (Lewis, 2015). Who we are online matters! "It's there forever" as one student participant suggested when exploring "The Internet Archive Way Back Machine". Understanding the impact of our digital footprints and digital marks and the complexities of ethical and responsible digital citizenship then is vital to what has underpinned evolving this adaptive elearning module. Significantly it is aligned to a commitment to a digitally-enhanced and flexible study experience for students and graduates that gives them a digital reputation advantage across their lives in understanding the power of a carefully considered and nuanced e-reputation.

Further, the module is a response to the challenges faced by institutions (NMC Horizon Report Higher Education edition, 2017, p. 22) in developing "digital fluency" and "digital citizenship" in that,

> Digital literacy transcends gaining isolated technological skills to generating a deeper
> understanding of the digital environment, enabling intuitive adaptation to new contexts and
> cocreation of content with others. Institutions are charged with developing students' digital
> citizenship, ensuring mastery of responsible and appropriate technology use, including online
> communication etiquette and digital rights and responsibilities in blended and online learning

settings and beyond. This new category of competence is affecting curriculum design, professional development, and student-facing services and resources. Due to the multitude of elements comprising digital literacy, higher education leaders are challenged to obtain institution-wide buy-in and to support all stakeholders in developing these competencies. Frameworks are helping institutions assess current staff capabilities, identify growth areas, and develop strategies to implement digital literacy practices.

Overall, the success of the *Digital Identity: Making Your Mark!* adaptive eLearning module development and implementation has been heartening. The module is integral to evolving sophisticated understandings of digital literacy capacities as it empowers students to leverage their digital identities – strategically, ethically, responsibly and creatively. Further, it could easily be adapted for staff use. The module's flexibility, adaptability, personalisation, and its empowering pedagogies elevate teaching across higher education. It's an innovation that needs to be applied across the sector for anyone wanting "to be a better person online!".

## Acknowledgements

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