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Social Media and the New Academic Environment:

Pedagogical Challenges

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Chapter 14 E-Learning Records: Are There Any to Manage? If so, How?

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ABSTRACT

Through the lens of an archival theoretical framework, this chapter examines the digital outputs of the use of social media applications by students, faculty, and educational institutions, and discusses the need to control and manage their creation, use, maintenance, and preservation. The authors draw on a case study that explores the identification, arrangement, description, and preservation of students' records produced in an eLearning environment in Singapore and is used as a starting point to highlight and discuss the implications that the use of social media in education can have for the management and preservation of educational institutions' records as evidence of their activity and of students' learning, to fulfill legal and accountability requirements. The authors also discuss how the use of social media by educators in the classroom environment facilitates the creation of records that raise issues of intellectual property and copyright, ownership, and privacy: issues that can further impact their maintenance and preservation.

INTRODUCTION

The participatory nature of social media applications has challenged the way in which knowledge is traditionally imparted and learning developed, as educators can enlist any number of social media tools to enhance "social learning" (Brown & Adler, 2008, p. 18) and engage students as participants in their education. As Armstrong and Franklin (2008) note, educational institutions report three key advantages to Web 2.0 use in higher education: 1. Affordances not present in other technologies such as co-creation and online collaboration; 2.

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Students' engagement fostered by familiarity; and 3. No cost, as these technologies are often free and without the restrictions that accompany those offered by institutions (p. 3). Blogs, wikis, social networking sites (SNSs), discussion fora, virtual worlds, and other tools are utilized by faculty to deliver content in novel and engaging ways, and by students to meet course requirements and interact with one another and faculty in active learning environments. But, what do we know about the documentary products of these interactions and how to manage and keep them? The documentary by-products and outputs of these new and emerging pedagogical practices and engagements are replacing traditional academic records, such as exam papers, term essays, or multiple answers tests, and Paul Wu Horng-Jyh even believes that "the emerging pedagogical practices inevitably change the ways records are defined in a learning space" (2010, p. 68).

Through the lens of an archival theoretical framework, this chapter examines the digital byproducts and outputs of the use of social media applications by students, faculty and educational institutions, and discusses the need to identify among them which constitute evidence of the learning process, and to control and manage their creation, use, maintenance and preservation. Further, it examines how issues of intellectual property and copyright, ownership and privacy can further impact their management through time. This discussion of the educational use of social media is situated in the learning, teaching and administrative activities of higher education (post-secondary) environments as the majority of current research on the educational use of Facebook and other social media tools primarily focuses on college and university student environments (Hew, 2011).

These authors primarily draw their observations from a case study conducted in the context of the third phase of the InterPARES (International Research on Permanent Authentic Records in Electronic Systems) Project, an international multidisciplinary research endeavour which aims at developing the theoretical and methodological knowledge essential to the long-term preservation of authentic records created and/or maintained in digital form (www.interpares.org). The case study explores the identification, arrangement, description and preservation of students' records produced in an e-learning environment in Singapore (Wu Horng-Jyh, 2010) and will be used as a starting point to highlight and discuss the implications that the use of social media in education can have for the management and preservation of the records of educational institutions which are to be kept as evidence of teaching and learning in order to fulfill legal obligations and accountability requirements.

Used to assess students' achievements and ability to meet course requirements, the byproducts and outputs of the use of social media, although different from traditional record types, are still subject to the same retention and access rules, thus, this chapter will also propose ways of respecting such rules by implementing policies and procedures capable of ensuring that the digital records of e-learning can be treated and maintained as institutional records – clear from intellectual property challenges, and as evidence of teaching activity, learning progress, and institutional assessment of both teaching and learning, for the benefit and accountability of all parties involved and the memory of the future.

SOCIAL MEDIA AND EDUCATION

Web 2.0 and Social Media

Web 2.0 (often referred to as the read/write Web) is an evolution of the Web, a shift from an environment of passive consumers to one where individuals can readily create, contribute and collaborate with other users (O'Reilly, 2005). Used to refer to the participative Web, Web 2.0 is an umbrella term that encompasses the ideas underpinning social media applications and the technologies that have produced them (Anderson, 2007).

Social media, as defined by Kaplan and Haenlein (2010), are "a group of Internet-based applications [and services] that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content (UGC)" (p. 60). Social media are generally linked to ideas such as: individual production and user generated content; harnessing the power of the crowd; data on an epic scale; architecture of participation; network effects; and openness (Anderson, 2007). The expression "social media" encompasses a variety of applications and services such as blogs and microblogs, wikis, RSS feeds, podcasts, multimedia sharing, tagging and social bookmarking, and social networking services (Anderson, 2007). The key attribute of the majority of these social media applications is the ability to enable users to develop, contribute, collaborate and share user-generated content on the web and enterprise platforms. The democratic nature of social media technologies has afforded greater connection, collaboration and knowledge creation in interactions amongst citizens, organizations, and governments (Benkler, 2006).

Social media are consistently evolving with the ever-increasing ability to combine tools and information to create new forms of documents that are posing unprecedented challenges to traditional recordkeeping paradigms. (Dearstyne, 2007; Gerber, 2006).

Social Media in Higher Education

There is a paucity of research into the record creating/recordkeeping implications of social media use in education; however, several reports and journal articles were identified which investigate the potential and current use of social media in education, its goals and implications for use. Most research presented in this literature examines the use of social media for teaching and learning (Chapman & Russell; 2009, Armstrong & Franklin, 2088; Becta, 2009; Hunter, 2009; Minocha, 2009). It seeks to understand how and if these technologies are currently being used and what is their potential to inform pedagogical practice of both instructors and learners. A large amount of the research/discourse into social media use in education focuses on Social Networking Services (SNS) and their potential use in this environment. SNS, as defined by boyd and Ellison (2007), are "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share connection, and (3) view and traverse their list of connections and those made by others within the system" (para. 4). For the purposes of this chapter we will expand our examination of educational use of social media beyond SNS to include a full range of social media tools and their potential for record creation. However, it is to be noted that many of the qualities that boyd and Ellison define as characteristics of SNS are also present in other social media tools and services such as blogs and microblogs, multimedia sharing sites, wikis, etc.

The growth of the personal Web, considered a trend in curriculum and pedagogy (Becta, 2009), and the consequent need of identifying and understanding the by-products and outcomes of its use, makes it necessary to understand the nature, characteristics and variants of such use. According to Haythornthwaite & Wellman (1998), academic communities support intricate hierarchies, rich organizational traditions and interpersonal ties utilizing many different channels of communication (as cited in Hewitt & Forte, 2008), but social media tools and services are often incorporated into higher education on an ad hoc basis (Chapman & Russell, 2009; Armstrong & Franklin, 2008; Hunter, 2008; Roblyer et al, 2010), complementing and potentially replacing traditional means of academic record creation and perhaps generating new and unique information artifacts. It is evident from the literature that these tools are adopted in educational environments that have moved, or are

moving towards a constructivist pedagogy which shifts the role of the educator from a "deliverer" of education to students, to a "facilitator" of students' engagement with the material, away from a traditionally hierarchical environment. Huijser (2008) writes "Web 2.0 technologies both reflect and drive a blurring of the lines between students and university educators which has a potentially profound impact on learning and teaching in higher education" (p. 45). However, the very qualities that make social media attractive in an educational environment create serious challenges for the identification, management and preservation of the records of teaching and learning:

The recent, and undeniably massive, growth in adoption of various social software applications represents both an opportunity and a threat to institutions and educators: opportunity because the qualities which help these applications thrive, align well with social-constructivist and other contemporary theories of learning which have resonated strongly with online educators and learners and spared massive interest and growth in adoption; threat in part because they are often developed and adopted by learners outside the bounds of their formal relationships with institutions, and in part because they depend on network characteristics that can be in tension with the more 'closed' environments and online approaches found within most institutions (Huijser, 2008, p. 47-8).

Research indicates that SNS such as Facebook are being employed by educators to share information with students. Hew (2011) reports that "One lecturer used Facebook to communicate or pass important information to students because it was easier and quicker than to look for them in class. Another lecturer felt that Facebook helped students ask questions that they might not feel comfortable doing so in class" (p. 665). While the extent to which students in higher education are using SNS such as Facebook for educational purposes is not large at present (Hew, 2011; Kolek & Saunders, 2009; Madge et al., 2009; Mazer, Murphy & Simonds, 2009), there is an impetus to increase formal incorporation of such tools into the higher education classroom (Munoz & Towner, 2011). Huijser (2008) argues that social media could potentially offer major opportunities for educational purposes, and that "educators could potentially seize on the ways in which these technologies are already being used by Generation Y, and appropriate and guide this usage into particular directions" (p. 46). Use of social media in higher education will continue to grow; however, there is no specific prediction as to the rate of growth (Chapman & Russell, 2009).

It is difficult to predict to what extent Web 2.0 will become integrated with the academic digital landscape and what impact it will have but respondents were generally positive that Web. 2.0 tools and services are here to stay and will increasingly be used. They thought that this would inevitably change the way students, staff and institutional services work, noting that using Web 2.0 poses its own challenges which need to be recognized, allowed for and addressed (Chapman & Russell, 2009, p. 25).

While students' preferences for using social media (particularly SNS) in higher education are mixed, it is evident that this trend will continue, making it necessary for educational institutions and faculty to negotiate this landscape in order to satisfy students differing expectations (Dahlstrom et al., 2011). "My generation is a social networking generation"-writes a student. "We devote most of our time to Tweeting and or reading tweets, it would help if we could communicate with our professors in this way because most of us aren't able to contact them during office hours" (Dahlstrom et al., 2011, p. 26). A landscape study examining the use of social media in higher education in Australia indicated that users prefer Web-based services that have already been adopted by their wider community and offer a greater ease of use and lower barriers to entry, including FaceBook, YouTube, Skype and Twitter (Hunter, 2009). As Chapman & Russell (2009) state: "if a large proportion of staff and/or students are using a service (e.g. Facebook) then IT services need to look at ways to support people who need to engage with that service" (p. 25). It is not just the responsibility of IT to react or, better, to be pro-active, but also of administrators, records managers and policy makers.

ARCHIVES, RECORDS, AND EVIDENCE

In archival theory, a record is "a document made or received in the course of a practical activity as its instrument or by-product, and set aside for action or reference" (Duranti, 2009, p.44). It has distinct attributes, which support the presumption of its authenticity and ensure its reliability and accuracy through creation, use, maintenance, and ultimately, preservation (www.interpares.org). The authenticity of digital records is dependent upon the protection through time of their identity and integrity. Persons and institutions keep the records they create in order to refer to them in subsequent action and to support accountability and compliance, that is, as evidence of their activities. In order for records to be used in their evidentiary capacity, they must be created, managed and preserved respecting applicable legislation, regulations, standards, codes of practice, procedures, and/or community expectations (Shepherd & Yeo, 2003). The evidentiary capacity of a record depends on its reliability and is assessed on the basis of its form, authorship, and procedure of creation. In a traditional educational environment producing traditional records all of these factors are easy to identify and assess; however, in a synchronous Web 2.0 environment, they become difficult to define and demonstrate and can pose challenges to effectively managing and preserving the records of eLearning over time.

Evidence is a relative term in legal terminology; it is the relation between two facts. The first fact is theoretical and necessitates proof (*factum probandum* or fact to be proven) and the second is real, concrete, and serves to prove the theoretical fact (*factum probans* or proving fact). Evidence is the relation between the fact to be proven and the fact that proves it; as Meehan states, "evidence is not evidence simply because the rules say so" – "evidence is a word of relation and as such has no complete signification of itself" (Meehan, 2006, p. 136). In order to have evidentiary capacity, to be used as evidence that is, a record must be trustworthy, that is, able to stand for the facts it attests, make authentic claims, offer accurate content, have an identity that is certain and ascertainable, and have proven integrity. Only if all these qualities are present in a record, it can serve as the *factum probans* that supports the *factum probandum*.

There are questions regarding whether and when the by-products and outputs of social media use in e-learning processes are records, and how to ensure that, if and when they are records, they are trustworthy, that is reliable, accurate and authentic. Content created with external social media tools and services may be unable to act as a record of the learning process because it lacks one of more of the necessary characteristics of a record to start with. Digital information, to be regarded as having record nature, must 1) present fixed form and stable content, 2) be the indisputable by-product or outcome of a clearly defined act in the context of a process or procedure of any nature, 3) be clearly related to the other by-products or outputs of the same process or procedure in a cause-effect relationship (i.e. archival bond), 4) be indisputably linked to an originator,¹ an author,² a writer³ and an addressee⁴ (be they individual, multiple or collective), 5) to a creator⁵ (e.g. the class, the course, the academic unit, the university), and 6) to a documentary, technological, procedural, provenancial, and juridical-administrative context (InterPARES 1 and 2).

In a social media environment each and every one of these necessary characteristics are hard to identify, demonstrate and, when present, maintain. Consider for example fixed form and stable content. A digital record has a fixed form if its binary content is stored so that the message it conveys can be rendered with the same documentary presentation it had on the screen when first saved, even if its digital presentation has been changed, for example, from Word to .pdf. A digital record has a fixed form as well if the same content can be presented on the screen in several different ways but in a limited series of pre-determined possibilities; in such a case we would have different documentary presentations of the same digital entity (e.g., statistical data viewed as a pie chart, a bar chart, or a table). This situation raises the issue of the difference between a stored record and a manifested record.

A "stored record" is constituted of the linked digital component(s)⁶ that are used in re-producing the record, which comprise the data to be processed in order to manifest the record (i.e., content data and form data) and the rules for processing the data, including those enabling variations (i.e., composition data). A "manifested record" is the visualization of the record in a form suitable for presentation to a person or system. Sometimes, a manifested record does not have a corresponding stored record, but is re-created from fixed content data when a user's action associates these data with specific form and composition data (e.g., a record produced from a relational database). If the same user's action always results in the same documentary presentation with the same content, the manifested entity is considered to have fixed form and stable content, even when it does not have a corresponding stored record, and, if all other requirements for the existence of a record are present, it is a record. In contrast, when one stored record may be manifested in several documentary presentations, the creator has to determine whether the official record is the stored one or one or more of the manifested ones by assigning to the chosen entity a classification code and/or a retention period. There might be situations in which a stored record is never manifested, as is the case with interacting business applications, workflow generated and used to carry out experiments, analyses of observational data carried out by interpreting software, etc. Also in this case, the creator determines which entities should be retained with other records of the same activity, manifested or not. Clearly, these decisions are based on the functions and activities in which the records participate, both as aggregates and as individual entities.

Stable content has a more intuitive explanation. A digital entity has stable content and can be considered a record, if all other conditions are satisfied, if the data and the message in it are unchanged and unchangeable, meaning that data cannot be overwritten, altered, deleted or added to. However, there are cases in which entities that demonstrate "bounded variability" can be said to have stable content. A digital entity has bounded variability when changes to its form are limited and controlled by fixed rules, so that the same query or interaction always generates the same result, and when the user can have different views of different subsets of content, due to the intention of the author or to the character of the operating systems or applications. While the first definition of stable content applies to static digital entities, the second is significant when the entities we are looking at are interactive.

A"static digital entity" is one that does not provide possibilities for changing its manifest content or form beyond opening, closing and navigating; for example, emails, reports, sound recordings, motion videos, and snapshots of web pages. These entities, if all other requirements are satisfied, are records, because they have fixed form and stable content. By contrast, an "interactive digital entity" presents variable content, form, or both, and the rules governing the content and form of presentation may be either fixed or variable. Interactive entities may or may not be records, depending on whether they are non-dynamic or dynamic. "Nondynamic entities" are those for which the rules governing the presentation of content and form do not vary, and the content presented each time is selected from a fixed store of data. Examples are

interactive web pages, online catalogs, and entities enabling performances: if the other conditions exist, they are records. "Dynamic entities" are those for which the rules governing the presentation of content and form may vary: these entities may be components of information systems or "potential records," in that they can become records if the digital system in which they exist, given the purpose that it fulfills, is supposed to contain records and is therefore redesigned in such a way that it will produce and manage records, or if the entities that should exist as records are moved to another system that only maintains digital records (i.e., static or non-dynamic entities). Examples of dynamic entities are: entities whose variation is due to data that change frequently (e.g., the design permits updating, replacement or alterations; it allows data collection from users or about user interactions or actions; or it uses these data to determine subsequent presentations); entities whose variation is due to data continually received from external sources and not stored within the system; entities produced in dynamic computing applications that select different sets of rules to produce documents, depending on user input, sources of content data, and characteristics of content (e.g., weather sites); entities produced by evolutionary computing where the software generating them can change autonomously (e.g., scheduling and modeling of financial markets; edutainment sites), etc. (Duranti & Thibodeau, 2006).

Thus, a digital entity that can be said to have fixed form and stable content according to the parameters outlined above is a document. While all records are documents, though, not all documents are records. Records must exhibit the other five characteristics mentioned earlier. The most important is the archival bond. The archival bond is a concept that is at the core of archival science. It is the network of relationships that each record has with the records belonging in the same aggregation.7 The archival bond is *originary*, because it comes into existence when a record is created (i.e., when, after being made or received, it is set aside in the archives, or archival fonds⁸ of the physical or juridical person who made or received it for action or reference), necessary, because it exists for every record (i.e., a document can be considered a record only if it acquires an archival bond), and *determined*, because it is qualified by the function of the record in the documentary aggregation in which it belongs. The archival bond first arises when a record is set aside and thereby connected to another in the course of action, but it is incremental, because, as the connective tissue that joins a record to those surrounding it, it is in continuing formation and growth until the aggregation in which the record belongs is no longer subject to expansion, that is, until the activity producing such aggregation is completed.

Besides determining the structure of the archival fonds, the archival bond is the primary identifying component of each record, as several identical documents become as many distinct records after they acquire the archival bond. The archival bond can be revealed by either the physical order of the records, their classification code or their registration number. The archival bond is also expression of the development of the activity in which the document participates, rather than of the act that the document embodies (e.g., appointment, grant, request), because it contains within itself the direction of the causeeffect relationship. Therefore, the archival bond determines the meaning of the record.

Finally, in order to establish whether the by-products and outcomes of the use of social media are records, it is also essential to establish in which way they participate in activities, if at all, in the context of the functions of their creator, and who are the persons linked to them as originators, authors, addressees, writers and creators (Duranti, 2009a).

Even if we are successful in ensuring that entities presenting the six characteristics of records are created during the e-learning process using social media, these records may still lack sufficient information to establish their integrity, authenticity, reliability and usability (NARA, 2010). Furthermore, if they do, protecting these qualities over time in social media environments may be difficult, as educational organizations may not have control over who has access to systems if information is hosted on third-party servers. The answers to these issues may only come from institutional policies prescribing what is to be considered a record in a social media environment, when such an entity is trustworthy, and how to keep it as such over time.

E-LEARNING, RECORD-MAKING, AND RECORDKEEPING

To resolve the record-related issues arising from social media use in higher education it is necessary to understand how social media are used pedagogically and to identify the by-products and outcomes of such use. How instructors and students, in the course of teaching and learning, use social media will determine what the by-products and outcomes of such use are. For example, assignments may be the outcomes of student work which are submitted to the teacher in a documentary form, whereas by-products may include correspondence, tweets, Facebook messages, etc., that is, any recorded output (whether intentional or not) of the interaction between students and teacher. Both outcomes and by-products should be capable of serving as evidence of course activity. The by-products would be evidence of the process of teaching and learning, while the products would be evidence of what has been learned (as manifested in assignments), with the latter being what is traditionally assessed.

In a traditional pedagogical environment, the outcomes that are evaluated are the students' products that demonstrate what the students in a particular context have learned: essentially, only those products are marked as assignments. In such a traditional juridical system, only similar outcomes would be considered the records of elearning, with the exclusion of the by-products. This is because the face-to-face learning paradigm is transferred to an e-learning environment without further translation. However, as social media are adopted into the e-learning environment, and pedagogical approaches become more constructivist, the potential for the by-products mentioned above to be assessable records of student learning is very real, with attention being paid to the quality of the interactions in the e-learning environment, the skill with which students navigate the environment or aid peers in doing so, and other similar measures of performance. Instructors who enlist Wikipedia as one learning environment, for example, may regard the acts of creating, editing and navigating on the Wikipedia platform as part of the basis of evaluation along with the actual article they produce (Kolowich, 2010; Jbmurray, 2009).

In the context of two examples, the authors are now going to examine the ways in which social media tools and services have begun to punctuate the landscape in higher education, to identify some of the ways in which this adoption and use pose challenges for records maintenance and preservation and test the educational institutions' ability to adhere to their ongoing administrative requirements and governing legislations and to interpret these through the lens of the archival concepts discussed above.

Professional Seminar, a Master's level course at the Nanyang Technological University in Singapore, is an example of a "Web 2.0 experimental learning environment" that incorporates both online and offline learning and utilizes social media (Wu Horng-Jyh, 2009). The course is modeled on constructivist pedagogy and incorporates social media tools, including blogs, fora and wikis, which the students are expected to use throughout the course for collaboration, communication and creation of content. The structure of the course has students first meeting in-person, after attending lectures by industry professionals, to discuss topics such as "leadership, communication, ethics and critical thinking," and then interact on the social media platform, which is expected to document "students' socializing, dialoging and sense-making efforts" (Wu Horng-Jyh, 2009). The digital objects that constitute the by-products of these interactions are required to be maintained, ensuring their reliability, authenticity, accessibility and usability over time, because they are considered evidence of student learning and are used by students in the construction of a final reflective report that aids in substantiating their learning outcomes (Wu Horng-Jyh, 2009). This course was one of the InterPARES 3 case studies. The case study included an examination of a system prototype that integrated web "archiving" and annotation functions, but this is beyond the scope of this chapter, which will primarily examine the "recordness" of the student outcomes through the lens of the archival theory discussed above - examining the implications for e-learning records and their requirements.

The second example of social media use in higher education is provided by courses for the Master of Archives and Records Administration (MARA) programme at the School of Library and Information Science (SLIS) of San Josè State University. As well as teaching students about social media and its implications for archives, the SLIS programme incorporates social media into its Master's courses and provides opportunities for students to "apply social media skills and knowledge" (Franks, 2012). The programme requires students to complete a mandatory Online Social Networking: Technology and Tools course at the beginning of their course of study. This course is designed to introduce students to a variety of "new and emerging technologies" used in contemporary online environments, including those they will be utilizing during the programme. The course includes several social networking platforms, content and learning management systems, web conferencing as well as immersive environments and trends in social computing (Franks, 2012). Because the courses at San Josè are solely online, it is necessary for the success of faculty and students that both are well equipped to effectively use social media and other online teaching and learning technologies. "The student experience is enhanced and community is built through the use of social media and emerging technologies in and outside of the classroom" (Franks, 2012). The suite of social media tools and technologies used in the SLIS programme range from in-house technologies to external tools, such as Second Life, Google Docs and Facebook. Students primarily work within Desire2Learn (D2L), the University's learning management system where students upload their work to a personal ePortfolio. The D2L courses that contain content are stored as inactive records by the University for five years (although if the content contains links to readings and lectures, these are not captured). Work done outside of the D2L system is recorded in the system as either a grade or a graded rubric with grade (most often the latter) (Franks, 2012).

For each of the two examples we ask what are the digital entities regarded as the records of e-learning. The answer will depend on the juridical context of the course, its intended products, its pedagogical approach, and how it defines and evaluates student learning goals within the system in which it resides-either through outcomes (products), interactions (by-products), or a combination of the two. Wu Horng-Jyh (2010) believes that "The concept of record in the eLearning space is inevitably shaped by its underlying pedagogical theories, which confluence with the perspectives of the records authors, preservers, users, and creators in defining the records in such a space" (p. 67). As we move to examine each environment from a record creating perspective, it is important to remember that the example from the Nanyang Technological University is of a blended learning environment (both online and offline), whereas the San Josè State courses are 100% online.

As already stated, Nanyang Technological University's Professional Seminar course is modeled on the theory of Constructivist Pedagogy (Wu Horng-Jyh, 2010). According to Wu Horng-Jyh (2010), changes in pedagogical practice are brought about by the affordances of new technologies. The emergence of social media has facilitated a pedagogical paradigm of participation rather than instruction. This approach shifts the focus from the teacher as a "molder" to that of the teacher as a "facilitator," with students being moved from an environment that supports a deterministic instructional design approach to one where more responsibility is placed on the students to construct their own understandings through interactions with other students and instructors in the social media space. According to Wu Horng-Jyh (2010), the instructor's role is to provide the framework and guidelines where conversations, dialogue and consensus building can occur amongst students, only intervening when necessary to aid in navigating conflict through dynamic and in-situ interventions. In Wu Horng-Jyh's eyes, this shift inevitably redefines the concept of records in a learning space (2010). In such a learning environment, what is the evidence of e-learning? The amount and quality of interactions appear to carry greater weight than the products, and as the outcomes of e-learning are no longer the sole object of evaluation, which now includes the by-products of teaching, learning and interaction, it becomes necessary to maintain and preserve the latter as well as the former according to juridical norms. However, the broader juridical context of the educational institution may support a more traditional approach versus the value placed on by-products as evidence of learning. So, as Wu Horng-Jyh (2010) suggests, with these new pedagogical functions needing to be accounted for, the question to be posed to stakeholders (including instructors, learners, record-keepers and educational institutions) is: how is the learning process to be accounted for?

As the goal of the Professional Seminar course was to develop students' "soft skills", including leadership, communication and critical/creative thinking, successful learning would be demonstrated by the engagement of students in a vibrant collaborative community where they involve each other in serious sense-making processes (Wu Horng-Jyh, 2010). Therefore, the teacher guided students in this engagement through participation in blogs, fora and wikis, all of which were hosted on the e-learning platform edveNTUre. While participation in these social media environments was encouraged, it was not mandatory. Only attendance in class and a short 500-word paper were mandatory, as the intended objective of the course was for students to focus on interacting through reflecting on the material and engaging with one another in the social media space. The intent was to have students assist one another in group forming and community building in the social media space, with those stronger in these "soft skills" aiding those who were not, providing an opportunity for teaching and learning amongst peers. Scaffolding work was also undertaken by the instructor when necessary to aid students in establishing a successful virtual learning community, by offering advice on organizing in the blog and/or discussing in the forum (Wu Horng-Jvh, 2010)..

The Professional Seminar utilized the SECI knowledge sharing functions (Nonaka, Toyama & Konno, 2000) - Socialization, Externalization, Combination and Internalization - to "guide students through a process of authenticating self-understanding, rationalizing and articulating thoughts, and norming and connecting on consensus, and then positioning and embodying their actionable knowledge through critical reflection, achieving a spiral of truly internalized knowledge" (Wu Horng-Jyh, 2010, p. 77). As such, the social media spaces of the course (blogs, wikis and fora) were populated by entries that could then be classified according to the SECI structure utilized by the Seminar (e.g. blog entries classified under Socialization as participants interact with one another and the speaker and share and exchange views). "By identifying these records, they form the basis of the formative assessment of the students' learning process, an emphasis over the conventional summative assessments" (Wu Horng-Jyh, 2010, p. 78). Additionally, these records, when aggregated, were utilized for evaluation of the success of the structure and format of the course and to inform curriculum development.

For the Professional Seminar course it was determined that the manifestations and interactions of the students on the blogs, fora and wikis were records of the course. "The inputs are actually recorded experiences or responses resulting from the users being triggered in the engagement with other users" (Wu Horng-Jyh, 2010, p. 84). They were considered records because:

- 1. They have fixed form and content;
- They have explicit linkages to other records

 for instance, comments are to a post in blogs and replies are to a thread in a forum discussion, within or outside of the digital system, through a classification code associates with SECI sense-making process;
- 3. The documents are kept in an eLearning platform with clear administrative context;
- 4. Each posting in blog, forum, wiki has an unambiguous writer and addressee, while the author is the instructor who prescribed the SECI learning spaces;
- 5. The action associated with these records are retrospective records of a collective "performance" that are designed according to a Constructivist Pedagogy and "conducted" by the instructor of the course (p. 85).

As mentioned earlier, linkages need to be maintained in order to ensure the archival bond is explicit and remains intact and that interactions and outcomes of e-learning activities are able to function as records when necessary. For the Professional Seminar course, the blog, forum and wiki postings were classified as Socialization, Externalization, Combination and Internalization and arranged as "SECI spirals" with such aggregations viewed as "mini-series" of records representing the learning experience as expressed by students, as well as the students' performance. The metadata applied to such records must be sufficient to ensure their authenticity (i.e. identify and integrity) and reliability, and allowing for access to these records as they are preserved over time.⁹

Having examined in detail the hybrid course delivered in Singapore, it is much easier to identify the records produced in the delivery of the San Josè course. As noted, this course is entirely on line, thus all the records of teaching and learning are digital entities resulting either from the interaction student-teacher and student-student (by-products of the learning activity) or students' products/ assignments (outcomes of learning activities). As the American juridical context considers all digital entities captured as records as having evidentiary capacity, the programme ensures such capture through the university central Information Technology storage system. However, although the intentional capture as records of both the byproducts and outcomes of e-learning ensures that they can be used as evidence of e-learning, the fact that they are kept outside the original context fails to convey the characteristics of the process. Indeed, there is no easy answer to the question that Wu Horng-Jyh (2010) asked at the beginning of the InterPARES case study: how is the learning process to be accounted for? At this time, we are unable to account for it in any accurate way. If we download by-products and outcomes to a central system we lose context, and if we leave it in cyberspace we encounter the set of issues linked to any kind of cloud computing, including those related to preservation, security, privacy and confidentiality, intellectual property and copyright, and ownership. In both cases, we might have to destroy the records of e-learning right after having verified and assessed them to avoid incurring the series of problems outlined below.

BEYOND RECORDNESS

All records resulting from the teaching, learning, research and administrative activities of higher education institutions, after having been identified as such, must be maintained and preserved for their evidentiary capacity to serve a variety of purposes, including (but not limited to) evidence of student performance and assessment, of faculty teaching and research performance, and of the institutional activities and adherence to applicable laws, policies and standards. The role educational institutions play in the building of societal culture and social memory may also be gathered from their records. Maintaining and preserving them over time requires more than just the ability to back them up, as the continued authenticity and accessibility of digital records call for on-going actions of digital preservation.

Digital Preservation

Digital preservation comprises the strategies and frameworks, policies, principles, techniques, and tools that afford for the ongoing stewardship of digital materials.

Research into digital preservation has demonstrated that it is not possible to preserve digital materials, but only the ability to reproduce them. Reproduction involves taking a variety of actions on digital objects over time. These may range from simply generating a copy of an object to recreating it, in the case of complex entities. Over time, it is necessary to either migrate the digital object to new technological environments or emulate the original one. Such actions are to be carried out over the lifetime of the digital object to ensure continuing access and use. Research has developed models of digital preservation (e.g. Open Archival Information System OAIS & Chain of Preservation COP) that can operate across communities and domains.

However, digital preservation also encompasses social and cultural conventions, which may be manifest through acts of selection and appraisal -- what is to be kept and how it should be kept; what gets included in or excluded from the recorded memory. Additionally, it requires an understanding of the rights and responsibilities involved in ongoing preservation and access to digital records, including those related to freedom of information and protection of privacy, as well as intellectual and economic rights and treaties. The effectiveness of digital preservation is predicated on the development of and adherence to agreed upon standards, benchmarks and practices and the creation of effective information policies, which by their nature can be value-laden.

Privacy and Confidentiality

Protecting the privacy and/or anonymity of users' activities is a serious issue in the context of social media use. Because social media operate via the web over the Internet, the information stored in social media applications resides in the cloud instead of the creator's computer hard drives. Information stored in the cloud may be located in countries and continents different from those in which it originates at any given time, and this may make it subject to the local laws and standards, raising questions for information security, access and privacy. Additionally, information residing in the cloud has to be protected not only in terms of ownership, but also for what it is. Information stored in the cloud – whether it is personal information, scientific data or other subject matter - has particular requirements attached to its management and is accompanied by a duty of care to safeguard its contents. Unauthorized access to digital information (be it data, documents or records) is a privacy concern for faculty and students interacting through social media applications and services, as is protecting any sort of information stored on the Internet. For example, the Freedom of Information and Protection of Privacy Act (FIPPA) applies to public institutions in British Columbia, Canada. It requires public

bodies to protect personal information no matter where it resides, and with limited exceptions, ensure that personal information is only stored in and accessed from inside Canada (OIPCBC, 2012). "Under FIPPA, it is an offence to store or allow access to personal information outside of Canada unless it is authorized by the individual the information is about" (OIPCBC, 2012, p. 3). Other jurisdictions have similar legislation that applies to the collection, storage and use of personal information.

A study of 136 undergraduate students (79%/106 of which were on Facebook) asked students about their interactions with faculty on the SNS. Of the 102 students who responded to the question "Do you think faculty should be on Facebook?" 66% found it acceptable, while of the remaining 33% cited issues of privacy and identity management as concerns (Hewitt & Forte, 2006). While two thirds of the students reported that they were comfortable with faculty on the site, "several students noted that student profiles often contain information they do not want professors to see" (Hewitt & Forte, 2006). The use of social media applications must examine privacy on a variety of levels - protection of privacy amongst peers/instructors within the application; protection of data and personal information within the institutional system; and protection of data and personal information on the web at large. "The social network environment makes it easy to accidentally share information to an unintended audience" (Munoz & Towner, 2011).

Utilizing third party social media applications for educational purposes may have consequences for the protection of individual privacy, confidentiality and online identity. For example, Google's new privacy policy (effective 01 March 2012) will see the company apply one policy to user information across all of its applications. Instead of being "siloed" as in the past, information from one Google application can now be applied when users engage with another application. For example, Google suggesting whom to include in the distribution of a Google Doc based on the users with whom one has shared information in the past or the syncing of location data to inform users that they may be late for a meeting based on their entries in Google Calendar.

Unlike a closed learning management system where students are safe to "experiment without consequences" (Downes, 2007), SNS are mediated public sites where the "conversation' may be recorded indefinitely, can be searched, replicated, and altered and may be accessed by others without the knowledge of those in the conversation" (Cain, 2008). Many students already utilize a number of social media tools for their personal or social use - to communicate with friends and family, participate in communities of common interest, etc. The identity that students have constructed in these communities may be different from the one they would choose to show classmates, faculty or administrators (Armstrong & Franklin, 2008; Cain, 2008). This is often not an issue that higher education institutions have begun to seriously address. "Anecdotally, it appears that relatively few institutions have created formal policies on how to deal with Facebook and SNS in general, let alone for specific educational purposes" (Munoz & Towner, 2011). Enlisting third party applications for use in the classroom may have broader implications for student and faculty privacy that must be considered and mitigated against, and resources should be enlisted to ensure all parties are educated on the privacy and confidentiality concerns involved in utilizing these sites.

As Munoz and Towner (2011) report, "educational uses for SNSs have critics among faculty and students;" the primary reasons cited are privacy, safety and the erosion of professional boundaries (Munoz & Towner, 2011; Cain, 2007; Griffith & Liyanage, 2008). While social media offer the opportunity for networking to occur, as Downes (2007) points out, it "makes communication hypervisible, with potentially profound consequences" (para 7). Downes (2007) argues that "in this context, managing one's public profile becomes a vital skill and this is one area where education can play an important role" (para, 7). Making use of such sites optional is not enough. As social media makes its way into the classroom there is an opportunity to engage with students and ensure they are informed, savvy users of these tools. "Students should be able to recognize that there needs to be a division of one's personal and professional identity online and find ways to protect and manage their digital selves" (Munoz & Towner, 2011).

Intellectual Property, Copyright, and Ownership

Intellectual property and copyright laws and guidelines should be considered when social media is enlisted for use in higher education. Users of SNS such as Facebook are required to grant Facebook a license to use and display the user's content. Ownership of data stored in the cloud (where the majority of external social media sites are hosted) can fall prey to ambiguous service level agreements. Moreover, the ability to retain and/or destroy records can be a serious concern when institutional records are stored in the cloud.

Preservation activities can also pose complex challenges to the intellectual rights associated with those objects. The rights of the copyright owner are attached to the authentic digital object and, specifically, to its documentary form. Economic and moral rights are affected by the long-term digital preservation actions of repetitive transformative migration or emulation. It is still unclear what the full ramifications of digital preservations actions on records are.

Economic rights, according to Michael O'Hare (1982), are those that enable the copyright owner to gain commercially from the exploitation of that work. Moral rights, according to Mira Sundara Rajan (2004), are those that the author or creator retains over the integrity of a work that disallow distortion, mutilation or other modification of the work in a way that is prejudicial to the author's

reputation; they also include the right to be associated with the work as its author by name or under a pseudonym, the right to remain anonymous, and the right to refuse that the work to be used in association with a product, service or cause in a way that is prejudicial to the author's reputation. These moral rights are particularly at risk in a social media environment, especially those linked to the outcomes of the e-learning process.

SOLUTIONS AND RECOMMENDATIONS

As we are still at the early stages in the adoption of social media in higher education, we have the opportunity to ensure that effective and appropriate policies and procedures are put in place by higher education institutions to control the use of social media in the classroom and protect the records of e-learning. Such policies and procedures should aim to the proper identification, capture, retention and management of the by-products and outcomes of e-learning activities, in order to fulfill institutional obligations and preserve institutional social memory.

These policies and procedures should also address the issues earlier identified: reliability, security, privacy and confidentiality, as well as authenticity, accuracy, economic and moral rights, freedom of information and long-term preservation and access. Service agreements with external hosts of social media tools and applications need also to consider what happens to the records of e-learning if the hosting services cease to operate. Furthermore, guidelines for faculty, students and administrators on best practices for the use of social media tools in the classroom, in research teams and when engaging with peers need to be developed and implemented. Education around the implications of social media use, particularly with regard to issues of privacy, confidentiality, ownership of data, and intellectual property needs to occur at all levels to ensure social media are used safely

and appropriately, and that the records resulting from their use can be captured and preserved as evidence of actions (Minocha 2009; Munoz & Towner, 2011; Chapman & Russell, 2009).

CONCLUSION

The ubiquitous use, the ease of access and the democratic nature of social media technologies have afforded greater connection, collaboration and knowledge creation through the interactions amongst students and educators. However, educational adoption of social media has proven to occur primarily on an ad hoc basis without the guidance of clearly established policies, procedures or best practices. Social media are continually evolving as technologies change and are utilized in new ways in higher education. The by-products and outcomes of the use of social media technologies are by their very nature ephemeral and collaborative, and much is unknown about them. Examining them from an archival point of view and understanding the record related issues linked to their creation and use will aid in identifying the risks in the use of social media in the classroom as well as the best ways for addressing them.

As stated in the introduction to this chapter, the ubiquitous use of social media in education is contributing to the production of students' academic records and altering their traditional makeup, but these technologies are still in the course of development. As the desire and drive to incorporate them into educational practices grows, it is necessary to study the products that are created as a result of this adoption. Limited empirical research exists that examines the impact of social media use on the records of teaching and learning, and because their nature encourages ad hoc adoption, it is necessary to gain an understanding of the attributes of the products social media generate if management and preservation of academic records are to be successfully undertaken.

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KEY TERMS AND DEFINITIONS

Accessibility: The availability and usability of information.

Accuracy: The degree to which data, information, documents or records are precise, correct, truthful, free of error or distortion, or pertinent to the matter.

Archival Bond: The network of relationships that each record has with the records belonging in the same archival aggregation.

Authenticity: The trustworthiness of a record as a record; i.e., the quality of a record that is what it purports to be and that is free from tampering or corruption.

Chain of Preservation: A system of controls that extends over the entire lifecycle of records in order to ensure their identity and integrity over time.

Evidence: All the means by which any alleged matter of fact, the truth of which is submitted to investigation, is established or disproved.

Identity: The whole of the characteristics of a document or a record that uniquely identify it and distinguish it from any other document or record. With integrity, a component of authenticity.

Integrity: The ability of a record to convey the message it was intended to communicate when generated.

Reliability: The trustworthiness of a record as a statement of fact. It exists when a record can stand for the fact it is about, and is established by examining the completeness of the record's form and the amount of control exercised on the process of its creation.

Trustworthiness: The accuracy, reliability and authenticity of a record.

ENDNOTES

- ¹ The physical or juridical person assigned the electronic address in which the record has been generated and/or sent.
- ² The physical or juridical person(s) having the authority and capacity to issue the record or in whose name or by whose command the record has been issued.
- ³ The physical or juridical person(s) having the authority and capacity to articulate the content of the record. It may be the same name as the author and/or originator of the record.
- ⁴ The physical or juridical person(s) to whom the record is directed or for whom the record is intended.
- ⁵ The physical or juridical person in whose *fonds* the record exists.

"Digital components" are digital entities that either contain one or more records or are contained in the record and require a specific preservation measure.

See for example Hilary Jenkinson, *A Manual* of Archival Administration (London: Percy, Lund,

Humphries, and Co., 1937), p. 97 et seq.; Giorgio Cencetti, "Il fondamento teorico della dottrina archivistica," *Archivi* II, VI (1939): 40; and Elio Lodolini, *Archivistica. Principi e Problemi*, 6th edition (Milano: Franco Angeli, 1992), pp. 132 and 149. See also Elio Lodolini, "The War of Independence of Archivists," *Archivaria* 28 (Summer 1989): 38, 41.

- ⁸ An archival fonds is the whole of the records that a physical or juridical person accumulates by reason of its function or activity. (www.interpares.org)
- ⁹ Identity and integrity metadata according to InterPARES (www.interpares.org) include: Identity metadata: names of the persons concurring in its creation; date(s) and time(s) of issuing, creation and transmission; the matter or action in which it participates; the expression of its archival bond; documentary form; digital presentation; the indication of

any attachment(s); digital signature; name of the person responsible for the business matter. Integrity metadata: name(s) of handling persons over time; name of person responsible for keeping the record; indication of annotations; indication of technical changes indication of presence or removal of digital signature; time of planned removal from the system; time of transfer to a custodian; time of planned deletion; existence and location of duplicates outside the system.