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THE USE OF ONLINE SOCIAL NETWORKING FOR HIGHER EDUCATION FROM AN ACTIVITY THEORY PERSPECTIVE

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Abstract

Social technologies including blogs, wikis, social bookmarking sites, photo sharing, video sharing and social networking sites (SNS) have been widely used to facilitate online social networking (OSN). We define OSN as a range of activities enabled by online social technologies and operationalised by a group of people. OSN is widely popular for non-educational purposes among students. However, OSN also has the potential to be appropriated and repurposed to support teaching and learning delivery in a formal learning environment. Despite the availability of implementation cases and trials, detailed studies on why and how lecturers and students appropriate and repurpose social technologies for OSN in education are still lacking. In addition, these understandings are seldom guided by any theoretical frameworks. This paper suggests the use of Activity Theory as the theoretical lens in investigating the use of OSN in higher education. A conceptual model of how social technologies can be appropriated and repurposed guided by the theoretical understandings is proposed and discussed.

Keywords: Online Social Networking (OSN), Educational activities, Social technologies, Activity Theory, Higher Education

1 INTRODUCTION

This paper explores how online social technologies (or social technologies in short) originally designed for non-educational purposes are appropriated and repurposed for higher education use. OSN in this paper is defined as a range of activities enabled by social technologies and operationalised by a group of people (Hamid, Chang, & Kurnia, 2009). Social technologies include Web 1.0 and Web 2.0 technologies such as instant messaging, online discussion boards, blogs, wikis, social bookmarking sites, podcasts, photo sharing, video sharing and social networking sites (SNS).

Recently, there has been much discussion about the potential use of social technologies in higher education (Boyd, 2007; Hemmi, Bayne, & Land, 2009; Land & Bayne, 2008) and some published examples of successful trials in the literature (Ajjan & Hartshorne, 2008; Dale & Pymm, 2009; Hemmi et al., 2009; Lockyer & Patterson, 2008; Virkus, 2008). It is generally assumed that the affordances and positive commentaries provide enough justification for adoption of social technologies in higher education. Social technologies are said to be valuable learning tools because they enable learners to create, publish, and share their work, and they can be used facilitate learner interaction and collaboration (Boulous, Maramba & Wheeler 2006; Selwyn 2008). They therefore align well with social constructivist theories of learning (McLoughlin & Lee 2007). However, there has been a lack of systematic investigation and theoretical analysis to demonstrate how and why academics and students use social technologies in their teaching and learning. In addition, the literature seldom explicates the theoretical frameworks and conceptual model used in the process of appropriating and repurposing social technologies. This makes difficult for others to adopt the same implementation model. It is generally accepted that appropriating and repurposing social technologies for educational purposes is not a straightforward process.

Therefore, this research aims to balance these commentaries about the potential benefits with empirical research into how and why lecturers and students use social technologies in teaching and learning. In particular, this paper aims to show the usefulness and relevance of Activity Theory (AT) to help explore the use of social technologies in teaching and learning. AT is a meta-theory (Iivari & Linger, 1999) that seeks to understand human activities as complex, socially situated phenomena. In this research AT can provide a useful framework for understanding and describing the complex teaching and learning activities involving lecturers and students in a socially situated phenomena (in this case, appropriation and repurposing of social technologies in their OSN activities).

The paper begins with a review of educational activities enabled by social technologies. This is followed by the benefits and challenges of social technology use in higher education. Subsequently, Activity Theory is discussed by introducing the concepts, principles, and activity systems leading to the discussion of appropriation and repurposing of social technologies. The paper then proposes a conceptual model of appropriation and repurposing of social technologies in higher education..

2 EDUCATIONAL ACTIVITIES ENABLED BY SOCIAL TECHNOLOGIES

2.1 Online Social Networking (OSN) Educational Activities

Berners-Lee (2001) argued that the Web is a democratic, personal and DIY (Do-It-Yourself) medium of communication. The common educational activities students and lecturers can perform using social technologies include but are not limited to the following:

- Content generating: Most of the social technologies allow users to easily create their own content and also to actively share information, opinion and support across networks of users. For example, podcasts can deliver educational materials in addition to music and blogs can be used as reflective diaries and to develop online communities of practice (Sandars & Schroter, 2007). In content

generating, students can write entries in blogs or wikis or record an audio file for a podcast lecture series (Hemmi et al., 2009; Huijer, 2008; Kane & Fichman, 2009; McLoughlin & Lee, 2007; Murray, 2008; Ras & Rech, 2009; Sendall, Ceccuci, & Peslak, 2008). Content generating can also involve creatively producing the multimedia contents for posting on file sharing sites such as YouTube (Anderson, 2007; Sandars & Schroter, 2007).

- Sharing: Students are able to publish their work and ideas on the public space for others to view and download. For example, multimedia files can be shared on file sharing websites such as Flickr, YouTube or Slideshare, and social bookmarking sites allow users to bookmark certain websites or tag keywords for users with similar interests to peruse (Anderson, 2007; Griffith & Liyanage, 2008; Kennedy et al., 2007; Lockyer & Patterson, 2008; Murray, 2008; Ras & Rech, 2009; Sandars & Schroter, 2007). Sharing content and information using social technologies can mean much more than just publishing them online. It may involve further improvement and enrichment to the content and information being shared. For instance, someone else might expand the contents by putting more facts and figures or correcting erroneous data such as on Wikipedia.

- Interacting: Social technologies also support interactions among students by allowing them to actively participate in a discussion. They can leave comments on a blog or discussion board and ask for more detailed explanations, adding someone as a friend and initiating communication by leaving a message (Hemmi et al., 2009; Lockyer & Patterson, 2008; McLoughlin & Lee, 2007; Munoz & Towner, 2009). In addition, responding to others' blog postings, co-writing wiki entries to enrich the contents on a selected topic, and joining a group on social networking sites are also part of interaction (Brown, 2008; Ellison, Steinfield, & Lampe, 2007; Eysenbach, 2008; Hemmi et al., 2009; Kane & Fichman, 2009; Lockyer & Patterson, 2008).

- Collaboratively Socialising: This activity involves working collaboratively in an online social environment to solve certain issues or problems with members of the groups, or organising social events through social networking sites (Anderson, 2007; Eysenbach, 2008; Hemmi et al., 2009; Kane & Fichman, 2009; Kennedy et al., 2007; McLoughlin & Lee, 2007; Munoz & Towner, 2009; Murray, 2008; Ras & Rech, 2009; Sendall et al., 2008). By collaboratively socialising, students can establish and actively communicate with the contacts made online, with the aim of working towards particular outcomes or producing deliverables, in both online and offline modes (Lockyer & Patterson, 2008; McLoughlin & Lee, 2007).

As can be seen from this review, there are numerous social technologies that can support different educational activities. This research does not aim to focus on a particular social technology. Rather the research will focus on specific educational activities that may be supported by various social technologies. In particular, we will examine the use of social technologies for supporting educational activities that involve interacting and collaboratively socialising.

2.2   Benefits of Social Technologies' Use in Higher Education

Commentators have noted numerous benefits that can be derived from using OSN. In particular, five major benefits have been identified from the literature:

- Improving engagement where it has been argued that OSN educational activities have the potential to improve student engagement and increase their participation in classroom, in particular among quieter pupils. Students can work collaboratively online, without the anxiety of having to raise questions in front of peers in class. Several case studies of implementation of social technologies such as blogs (Parvis, Paterson, & Murray, 2007; Wong, 2008), wikis and podcasts (Wong, 2008), and web technologies in general (Crook, Fisher, Graber, Harrison, & Lewin, 2008; Salaway, Caruso, & Nelson, 2007) have provided the examples whereby quieter students who were initially reluctant and hesitant to participate and interact actively in class.

- Enhancing learning motivation where social technologies can further boost students' motivation, encourage their attention to detail and contribute to an overall improved quality of work (Crook et

al., 2008). A study by Rifkin, Longnecker, Leach, Davis & Orthia (2009) indicated that when students publish their work online for multiple audiences, their inputs are mostly original, interesting and engaging for others to see. It can be construed that creating work for a real audience is an authentic task that motivates students to perform well.

- Offering personalised course material where academics who are using such technologies in their classroom will then be able to learn more about the students they teach simply by viewing the students' profiles (Griffith & Liyanage, 2008). In response to this, lecturers can personalise the course material based on the students' profiles (Buckley, Hasen, & Ainley, 2004).

- Developing collaborative skills where some social technologies such as wikis and to some extent blogs, encourage inquiry-based and collaboration activities among students. By publishing and presenting their work to a wide audience through blogs, wikis, or podcasts, learners benefit from the opportunity to appropriate new ideas, and transform their own understanding through reflection (Dale & Pymm, 2009; Williams & Jacobs, 2004).

- Appealing to students' interest in these technologies. New technologies are said to be compatible with the traits of some of the new generation students who are comfortable with the latest technology available in the Internet space (Ellison et al., 2007). For many students, online technologies and OSN activities are part of their daily routines.

2.3   Challenges of Social Technologies' Use in Higher Education

While there appear to be clear benefits of using OSN activities in higher education, there are also potential challenges and disadvantages. Jones, Blackey, Fitzgibbon, & Chew (2010) conducted an empirical investigation of OSN use in four universities in the UK involving 76 questionnaire participants and 14 interviews with students. They found five challenges of social software for learning: (1) the separation of life and studying; (2) originality and copyright issues; (3) sense of information flooded; (4) time constraint and (5) lecturers are not up-to-date and may not know how to integrate and make use of social software. These challenges may pose a significant barrier to the use of OSN in higher education if the stakeholders (solution providers, university administration, lecturers, students, technical support, etc) do not address the issues properly.

As highlighted in Section 2.1, the use of OSN educational activities will involve interactions among lecturers and students and to some extent, with other parties inside or outside the university boundary. Activities are not isolated units, but nodes in crossing hierarchies and networks which are influenced by other activities (Issroff & Scanlon, 2002). Social technologies support open publishing and this can create tension. Jones et al (2010) reported how contradictions arose when students used wikis in a classroom activity, with students questioning the trust they could put in the originality of the content and the authority of the person who published their ideas on wikis. Boulos (2006) claimed that wikis are prone to vandalism and as a result lead to serious quality issues. In such an open collaborative platform, unsuitable or misleading content can get published, while quality content can be deleted. These examples show that social technologies can create contradictions or conflict within the formal education setting in which they are introduced. Further, there may not be any established rules of practice to make effective use of the chosen social technology, or its use may conflict with established ways of doing things or with existing rules and regulations. The concept of contradictions within and between social settings is central to Activity Theory and will be discussed further below.

We argue that one of the possible ways to address the challenges is by understanding, analysing and responding to the contradictions that occur when a new tool is introduced in a learning setting. To do this, we propose to draw upon Activity Theory in exploring how and why lecturers and students use social technologies in teaching and learning. A discussion on AT and an illustration of how activity systems can be deployed in this research is covered next.

3   ACTIVITY THEORY FOR RESEARCHING SOCIAL TECHNOLOGIES IN HIGHER EDUCATION

Activity Theory is a psychological theory that emerged in Russia in the 1920s based on the work of Lev Vygotsky, Leontev and Luria who sought to understand human activities as complex, socially situated phenomena (Bryant, Forte, & Bruckman, 2005). The theory has been used for over 20 years as a perspective for investigating a wide range of human activities and because of its emphasis on artifacts, it is particularly suited to Information Systems research in general including social technologies in education (Crawford & Hasan, 2006; Hashim & Jones, 2007; Kuswara, Cram, & Richards, 2008; Masters, 2009; Nardi, 1996; Waycott, 2004; Young, 2009).

3.1   Previous IS Research Using Activity Theory

AT provides an effective framework for understanding and describing the learning experience for students and teachers when using technology and has been used in research concerning the use of ICT in higher education (Hashim & Jones, 2007; Issroff & Scanlon, 2002; Waycott, 2004). Crawford & Hasan (2006) demonstrated the use of AT as a suitable vehicle for understanding and analysis in many areas of IS research and practice. This included the application of AT to the study of socio-technical systems which mediate complex, collective activities in the modern workplace and in everyday life.

AT has been used to study the use of Web 2.0 technologies to support collaborative learning. Kuswara et al (2008) found that simply making Web 2.0 tools available or even mandating their usage does not guarantee that students will use the tools for collaborative learning. They suggested complementing the use of AT with an affordances perspective to offer guidance to lecturers. Masters (2009) employed AT to provide a detailed description of connections within a social networking group as participants worked together to achieve individual and common goals.

3.2   The Concepts of Activity Theory

The fundamental concept of AT is that awareness emerges from an individual participating in a social structure where activity incorporating the use of tools to produce objectives leads to socially valued outcomes. The AT model is represented by Engestrom (1987) in the form of a triangle with 6 constructs that he called an activity system. The subject (person) interacts with the community, rules, division of labour, and the tools in activity that is directed towards an object (or goal) and is transformed into an outcome. This triangle is shown in Figure 1, below.
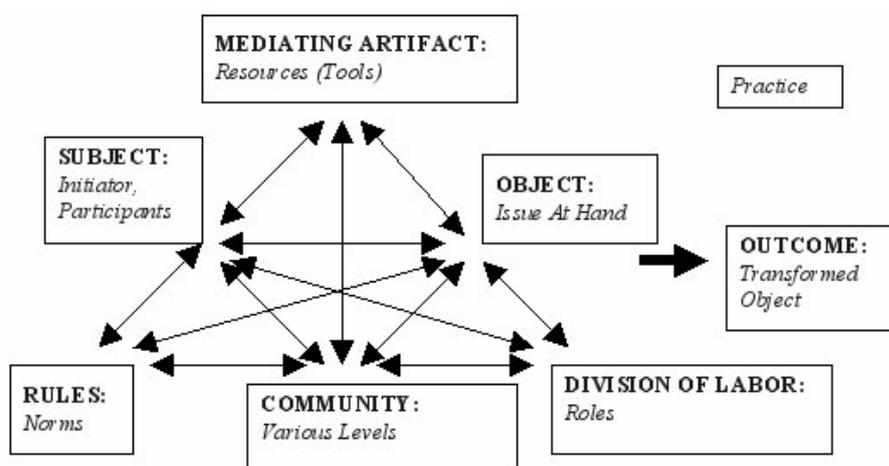

Figure 1.   The Activity Theory Model (Engestrom, 1987)

Engestrom (2001) also outlined following principles of AT:

- The main unit of analysis in AT is the activity system (Engeström, 2001)

- Multiple perspectives, interests, and traditions can be a source of conflict and of transformation in the system. This is because members of an activity system "carry their own diverse histories" and the system itself "carries multiple layers and strands of history engraved in its artefacts, rules and conventions" (Engeström, 2001, p. 136).

- Contradictions can result in tensions but also transformation in activity systems. A contradiction in teachers' practices might occur when a new technology is introduced into their activity system and clashes with the existing rules, tools, and divisions of labour (Murphy and Rodriguez-Manzanares, 2008).

- Expansive learning relates to the possibility of expansive transformations in activity systems through reconceptualisation of the object and the motive of activity "embracing a radically wider horizon of possibilities than in the previous mode of the activity" (Engeström, 2001, p. 137).

The notion of contradictions is claimed as the driving force of change and development in activity systems (Engeström, 2001). Contradictions have been described as "a misfit within elements, between them, between different activities, or between different developmental phases of a single activity" (Kuutti, 1996, p. 34). Transformation in overcoming the contradictions may occur when the parties involved acknowledge and take action to resolve the issues. This resolution usually leads to innovation and cannot occur at the individual level "because contradictions are in social/material relations among groups of people and the tools they use" (Wardle, 2004).

3.3 Activity System for Appropriation and Repurposing

Figure 2 below illustrates an activity system expected to occur in the use of social technologies for OSN activities in higher education. All AT constructs: subjects, artifacts (tools and signs), object, rules, community and division of labour are represented in the visualisation of the OSN activity systems.
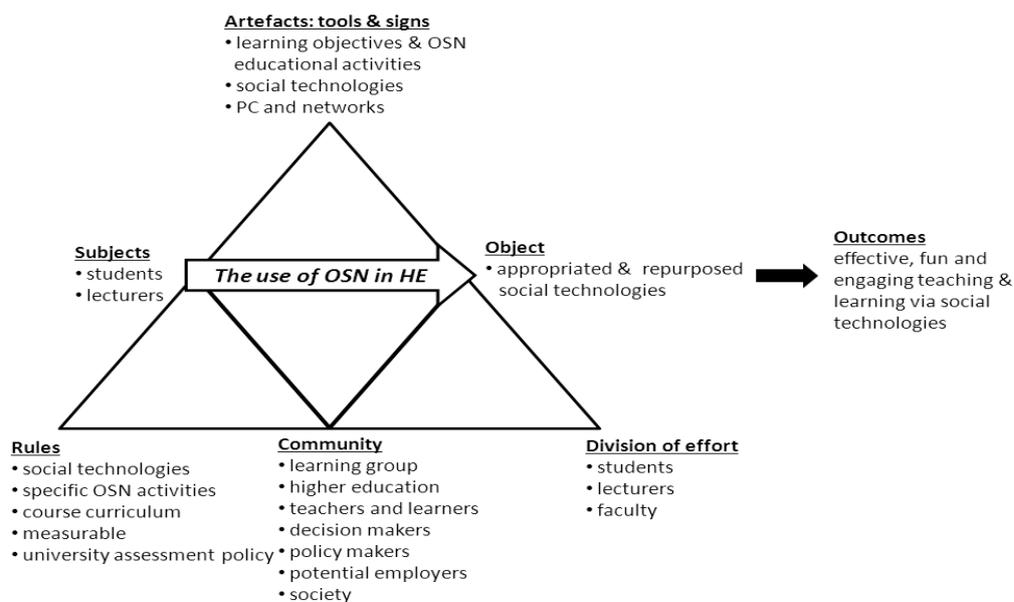

Figure 2.   Illustration of Activity System of OSN Use in Higher Education

The subjects in this case are the students and lecturers in the process of using OSN for their educational activities. The object or issue at hand is the appropriation and repurposing of social

technologies. The artefacts required to perform this are the specific learning objectives and OSN educational activities the subjects are pursuing, as well as the social technologies and computers used. The rules could include regulations about how the social technologies are used, the course curriculum, and university assessment policy. The broader community could include students and lecturers at other universities, decision makers, and potential employers. The division of effort refers to clear roles and responsibilities among those involved in the activity, such as lecturers and students. The eventual outcomes of the appropriation and repurposing of OSN can be suggested as a more effective, fun and engaging teaching and learning experience involving social technologies. However, there may be other less positive implications of using OSN in higher education resulting from the challenges mentioned above. We expect contradictions will arise when social technologies are introduced in a learning setting, and we anticipate that these will be identified when coding and analysing the data.

In the process of understanding how appropriation and repurposing of social technologies can be modeled and understood, it is imperative to examine the learning theory claimed to be in perfect synergy with the nature of social technologies (Cochrane & Bateman, 2009) as well as the concept of appropriation and repurposing itself.

3.4   Social constructivist theory of learning

Numerous learning theories exist today. The four major learning theories are behaviorism, constructivism, cognitivism, and social learning (Chowdhury, 2006). In particular, the work of Dewey (1916), Vygotsky (1978), Piaget (1973), Bandura (1977) and Bruner (1996) can be seen as historical precedents for the social constructivist theory of learning. The current learning perspectives incorporate the following important assumptions: learning is an active process of knowledge construction in which the learner attempts to make sense out of the world rather than a passive recording or acquiring of knowledge; learners actively construct their own knowledge based on their existing conceptions and knowledge and; knowledge is constructed by learners through social interaction with others and on the basis of interaction with their environment (Ally, 2004; Anthony, 1996; Jonassen, 1994)

3.5   Appropriation and Repurposing

There are several views on what appropriation and repurposing mean in the context of using new technologies. Degele (1997) argued that the concept of appropriation comes from creativity, with users creating new ways of using tools, distinct from what the developers and managers originally designed and developed the software or application for. Orlikowski (2000) viewed appropriation as "technologies-in-practice" in the context of IT use in organisations. Waycott (2004) examined appropriation as the integration of new tools into user's activities, while Hemmi et al (2009) used the term appropriation to describe the use of social technologies in the educational realm. According to Jones & Twidale (2005), there are two types of appropriation: (1) serendipitous appropriation which is the uses that arise out of spontaneous creativity, and (2) goal-oriented appropriation where a user finds a technology that can help him or her satisfy a need or aid in attaining a specific, defined goal.

Fill et al (2006) argued that 'pedagogic repurposing' is part of a teacher's expertise. Hence, academics need to equip themselves with the knowledge and skills to repurpose social technologies for their teaching purposes. They also argued that there are two types of repurposing: technical and content repurposing (2006). Bond et al., (2008) claimed that repurposing is the process of modifying the content or learning design and they divided repurposing into repurposing for reasons of localisation; repurposing to incorporate substantively new content and repurposing in changing the way the resource is used, rather than changing the resource itself.

For the purposes of this paper, both terms "appropriation" and "repurposing" refer to "goal-oriented appropriation" and "repurposing in changing the way the resource is used". In the context of using social technologies in higher education, the terms appropriation and repurposing are defined as "the

process of pedagogically changing the way social technologies are used to help achieve specific learning objectives through OSN educational activities."

4   CONCEPTUAL MODEL

The conceptual model proposed in Figure 3 illustrates our interpretation of the processes involved when lecturers and students appropriate and repurpose social technologies for use in higher education.

The model shows the two main groups of subjects (students and lecturers); the tools: social technologies; the input: the pedagogic principles informed by the underlying social constructivist learning theory; the process: (1) OSN educational activities, and (2) the appropriation and repurposing of social technologies; and the output: the benefits and challenges of appropriating and repurposing social technologies in higher education. The motivations and reasons why lecturers and students appropriate and repurpose social technologies will be the focus of the investigation. The implications of the use of social technologies for OSN educational activities will also be examined, and are expected to encompass both benefits and challenges.
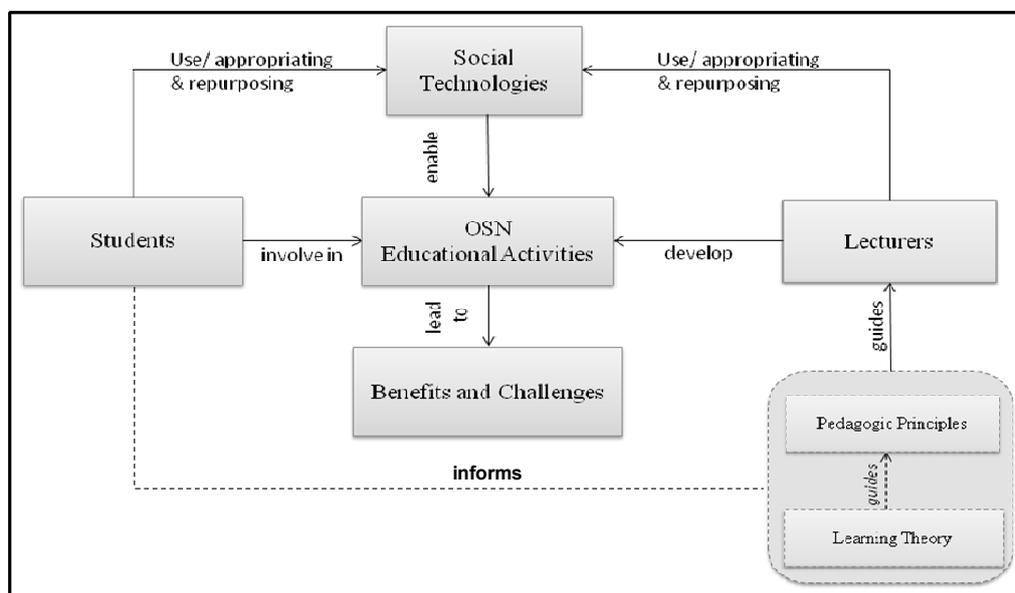

Figure 3.   Conceptual Model of the Research

We anticipate that there may be contradictions within the benefits and challenges identified. For example, the availability of ubiquitous Internet access can become benefits to students who have a computer and Internet connection. However, it can also pose as a challenge especially to students who do not have computers and the Internet in order to use social technologies for educational purposes. The identification of these contradictions may lead to suggestions for policy and infrastructure improvements.

Guided by the proposed conceptual model, this research will be designed as an interpretive research. Data will be gathered through semi-structured interviews with about 15-20 lecturers. To gain further understanding of the initial findings and to validate the reliability of the data, a triangulation method (Golafshani, 2003) will be used by (a) selecting consenting lecturers as participants, (b) conducting several focus groups with students, and (c) conducting case studies examining the use of OSN in specific educational settings. The case studies will involve self-report methods (interviews, focus groups, surveys), collection of artefacts that show how OSN activities have been used, and observations of student and staff use of OSN. Activity theory will be employed to guide data analysis.

The unit of analysis for this research will primarily be lecturers' and students' perspective on their use of OSN. The perspectives of university administrative and technical staff will also be examined. The data collection stage is scheduled to be conducted in the winter and spring 2010 academic sessions with several participating Australian and Malaysian universities.

5 DISCUSSION AND CONCLUSION

Studies categorised as interpretive generally attempt to understand phenomena through the meanings that people assign to them (Myers, 1997). In the context of this research setting, activity system will be used to make a thorough analysis of the teaching and learning including the rules and regulations, division of labour, and mediating tools that all play a role in OSN use. AT will also be used to explore how the appropriation and repurposing of social technologies for educational activities has an impact on the activity system. A before and after activity system analysis will therefore be carried out.

Harnessing social technologies in higher education offers both opportunities and challenges. Opportunities arise because there are a number of potential benefits that have been identified from the application of the technologies in higher education. The research expects to discover a complex process of appropriation and repurposing of social technologies but this complexity can be explained and modeled in a simpler way for ease of adoption by other users

However, social technologies pose some challenges as well. There is little empirical evidence to showcase how social technologies are used to facilitate OSN activities and what benefits can be derived from each specific activity. Therefore, in this study, guided by Activity Theory, we have conceptualised how the appropriation and repurposing of OSN can take place. To further understand the motivations behind the use of OSN by lecturers and students in higher education, methodological data collection will be pursued in the next phase of the research. We also argue that the concept of contradictions posited in AT can be used to identify the tensions in the OSN activity system, and the resolutions of contradictions can lead to innovation in how social technologies can be better appropriated and repurposed. This research will help further understanding of how and why social technologies can be appropriated and repurposed in higher education, and how they can be leveraged to support effective and engaging learning experiences.

References

Ajjan, H., & Hartshorne, R. (2008). Investigating Faculty Decisions to Adopt Web 2.0 Technologies: Theory and Empirical Tests. *Internet and Higher Education 11*, 71-80.

Anderson, P. (2007). *What is Web 2.0? Ideas, Technologies and Implications for Education* (Project Report)

Bandura, A. (1977). *Social Learning Theory*. Eaglewood, Cliffs, N.J: Prentice Hall Inc.

Berners-Lee, T. (2001). *Weaving the Web: Origins and Future of the World Wide Web*. Mason, OHIO: Texere Publishing.

Bond, S., Ingram, C., & Ryan, S. (2008). Reuse, repurposing and learning design - lessons from the DART project. *Computers and Education, 50*(2).

Boulos, M. N. K., Maramba, I., & Wheeler, S. (2006). Wikis, blogs and podcasts: a new generation of Web-based tools for virtual collaborative clinical practice and education. *BMC Medical Education, 6*(41), 1.

Boyd, D. (2007). Social Network Sites: public, private or what? *The Knowledge Tree, An e-Journal of Innovation*(13).

Brown, J. S. (2008). How to Connect Technology And Content In The Service Of Learning *The Chronicle of Higher Education, 55*(8).

Bruner, J. (1996). *The Culture of Education*. Cambridge , MA: Harvard University Press. .

Bryant, S., Forte, A., & Bruckman, A. (2005). *Becoming Wikipedian: Transformation of Participation in a Collaborative Online Encyclopedia*. Paper presented at the GROUP'05, Sanibel Island, Florida, USA.,

Buckley, S., Hasen, G., & Ainley, M. (2004). *Affective engagement: A Person Centred Approach to Understanding the Structure of Subjective Learning Experiences*. Melbourne

Chowdhury, M. (2006). Human Behavior In The Context of Training: An Overview Of The Role of Learning Theories as Applied to Training and Development. *Journal of Knowledge Management Practice, 7*(2).

Cochrane, T., & Bateman, R. (2009). *Smartphones give you wings: Pedagogical affordances of mobile Web 2.0.* Paper presented at the In Same places, different spaces,Ascilite, Auckland.

Crawford, K., & Hasan, H. (2006). Demonstrations of the Activity Theory Framework for Research in IS. *Australasian Journal of Information Systems http://dl.acs.org.au/index.php/ajis, 13*(2), 49-68.

Crook, C., Fisher, T., Graber, R., Harrison, C., & Lewin, C. (2008). *Implementing Web 2.0 in Secondary Schools: Impacts, Barriers and Issues*. UK

Dale, C., & Pymm, J. (2009). Podagogy – The iPod as a Learning Technology. *Active Learning in Higher Education, 10*(1), 84-96.

Degele, N. (1997). Appropriation of Technology as a Creative Process. *Creativity and Innovation Management, 6*(2).

Dewey, J. (1916). *Democracy and Education*. New York Macmillan.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The Benefits of Facebook ''Friends:'' Social Capital and College Students' Use of Online Social Network Sites. *Journal of Computer-Mediated Communication 12*(2007), 1143-1168.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research.* Helsinki: Orienta-Konsultit.

Engeström, Y. (2001). Expansive Learning at Work: toward an activity theoretical reconceptualization. *Journal of Education and Work, 14*(1), 133-156.

Eysenbach, G. (2008). Medicine 2.0: Social Networking, Collaboration, Participation, Apomediation, and Openness. *Journal of Medical Internet Research, 10*(3), 1-9.

Fill, K., Leung, S., DiBiase, D., & Nelson, A. (2006). Repurposing a learning activity on academic integrity: the experience of three universities. *Journal of Interactive Media in Education, 01*, 1-12.

Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report, 8*(8), 597-607.

Griffith, S., & Liyanage, L. (2008). *An Introduction to the Potential of Social Networking Sites in education.* Paper presented at the Proceedings of the Second Emerging Technologies Conference

Hamid, S., Chang, S., & Kurnia, S. (2009). *Identifying the Use of Online Social Networking (OSN) in Higher Education* Paper presented at the In Same places, different spaces, Ascilite Auckland 2009.

Hashim, N., & Jones, M. (2007). *Activity Theory: A framework for qualitative analysis*. Paper presented at the 4th International Qualitative Research Convention (QRC).

Hemmi, A., Bayne, S., & Land, R. (2009). The Appropriation and Repurposing of Social Technologies in Higher Education. *Journal of Assisted Learning, 25*(Special Issue), 19-30.

Huijer, H. (2008). Exploring The Educational Potential of Social Networking Sites: The Fine Line Between Exploiting Opportunities and Unwelcome Imposition. *Studies in Learning, Evaluation Innovation and Development (SLEID), 5*(3), 45-54.

Iivari, J., & Linger, H. (1999). *Knowledge Work as Collaborative Work: A Situated Activity Theory View.* Paper presented at the 32nd Hawaii International Conference on System Sciences, Hawaii.

Issroff, K., & Scanlon, E. (2002). Using technology in Higher Education: an Activity Theory perspective. *Journal of Computer Assisted Learning 18*, 77-83.

Jones, M. C., & Twidale, M. B. (2005). What's in a name? Exploring the connections between abstraction and appropriation. *International reports on socio-informatics 2*(2), 43-47.

Jones, N., Blackey, H., Fitzgibbon, K., & Chew, E. (2010). Get out of MySpace! *Computers & Education, 54*(2010), 776-782.

Kane, G. C., & Fichman, R. G. (2009). The Shoemaker's Children: Using Wikis For Information Systems Teaching, Research and Publication. *MIS Quarterly, 33*(1), 1-17.

Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J., Bennet, S., et al. (2007). *The Net Generation Are Not Big Users of Web 2.0 Technologies: Preliminary Findings.* Paper presented at the Proceedings Ascilite Singapore 2007, Singapore.

Kuswara, A., Cram, A., & Richards, D. (2008). *Web 2.0 supported collaborative learning activities: Towards an affordance perspective.* Paper presented at the Proceedings of the 3rd International LAMS & Learning Design Conference 2008: Perspectives on Learning Design, Sydney.

Land, R., & Bayne, S. (2008). *Social technologies in higher education: Authorship, subjectivity and temporality.* Paper presented at the Proceedings of the 6th International Conference on Networked Learning.

Lockyer, L., & Patterson, J. (2008). *Integrating Social Networking Technologies In Education: A Case Study Of A Formal Learning Environment.* Paper presented at the Eighth IEEE International Conference on Advanced Learning Technologies.

Masters, J. (2009, 27 - 31 July 2009). *Using Cultural Historical Activity Theory (CHAT) to Frame 'SuperclubsPLUS', an Online Social Network for Children.* Paper presented at the 9th IFIP World Conference on Computers in Education (WCCE 2009) Bento Gonçalves, RS, Brazil

McLoughlin, C., & Lee, J. W. L. (2007). *Social Software and Participatory Learning: Pedagogical Choices with Technology Affordance in the Web 2.0 Era.* Paper presented at the Proceedings Ascilite Singapore, 2007, Singapore.

Munoz, C. L., & Towner, T. L. (2009). *Opening Facebook: How To Use Facebook In The College Classroom.* Paper presented at the Proceedings of Society for Information Technology and Teacher Education Conference, Charleston, South Carolina.

Murray, C. (2008). Schools and Social Networking: Fear or Education? *Synergy Perspectives: Local, 6*(1), 8-12.

Myers, M. (1997). Qualitative Research in Information Systems. *MIS Quarterly, 21*(2), 241-242.

Nardi, B. (Ed.). (1996). *Context and Consciousness: Activity Theory and Human-computer Interaction*: MIT Press, Cambridge.

Orlikowski, W. J. (2000). Using Technology and Constituting Structures; A Practice Lens for Studying Technology in Organizations. *Organization Science 11*(4), 404-428.

Parvis, S., Paterson, J., & Murray, K. (2007). *Empowering student participation in face-to-face classes through blogs.* Paper presented at the The Shock of the Old 2007: Shock of the Social a one-day Conference on Educational Technologies.

Piaget, J. (1973). *To Understand is to Invent: The Future of Education.* Grossman, New York.

Ras, E., & Rech, J. (2009). Using Wikis To Support The Net Generation In Improving Knowledge Acquisition in Capstone Projects. *The Journal of Systems and Software, 82*(2009), 553-562.

Rifkin, W., Longnecker, N., Leach, J., Davis, L., & Ortia, L. (2009). *Motivate students by having them publish in new media: An invitation to science lecturers to share and test.* Paper presented at the Motivating Science Undergraduates: Ideas and Interventions, UniServe Science Proceedings.

Salaway, G., Caruso, J. B., & Nelson, M. R. (2007). *The ECAR Study of Undergraduate of Students and Information Technology, 2007*: EDUCAUSE

Sandars, J., & Schroter, S. (2007). Web 2.0 Technologies for Undergraduate and Postgraduate Medical Education: An Online Survey. *Postgraduate Medical Journal, 83*(2007), 759-762.

Sendall, P., Ceccuci, W., & Peslak, A. (2008). *Web 2.0 Matters: An Analysis of Implementing Web 2.0 In The Classroom.* Paper presented at the Proceedings ISECON 2008.

Virkus, S. (2008). Use of Web 2.0 Technologies in LIS Education: Experiences at Tallinn University, Estonia. *Electronic Library and Information Systems, 42* (3), 262-274.

Vygotsky, L. S. (1978). *Mind in Society, the Development of Higher Psychological Processes.* Cambridge, MA: Harvard University Press.

Wardle, E. A. (2004). Can cross-disciplinary links help us teach "academic discourse" in FYC? . *Across the Disciplines* Retrieved 14 March, 2010, from http://wac.colostate.edu/atd/articles/wardle2004

Waycott, J. (2004). *The Appropriation of as Learning and Workplace Tools: An Activity Theory Perspective* The Open University, Milton Keynes, UK.

Williams, J. B., & Jacobs, J. (2004). Exploring the Use of Blogs as Learning Spaces in the Higher Education. *Australian Journal of Education Technology, 20*(2), 232-247.

Wong, H. (2008). *Embracing Web 2.0 in a Language Classroom: a Hong Kong Case*. Paper presented at the IT in Education Symposium.

Young, K. (2009). Online Social Networking: An Australian Perspective. *International Journal of Emerging Technologies and Society 2009, 7*(1), 39-57.