Constructive Disruptions for Effective Collaborative Learning: Navigating the Affordances of Social Media for Meaningful Engagement

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Abstract: The essentialist view that new technological innovations (especially Social Media) disrupt higher education delivery ride on educators' risk averse attitudes toward full scale adoption of unproven technologies. However, this unsubstantiated logic forecloses possibilities for embracing the constructive dimensions of disruptions, and grasping the tremendous academic potential of emerging technologies. Community of inquiry and virtual ethnography were adopted as theoretical and methodological lenses for exploring the productive pedagogical impacts of appropriating Social Media in an Information Systems course at a South African University. Lecturer-student and peer-based postings on Facebook were examined to understand the influence of Facebook adoption on student meaningful learning and pedagogical delivery. The findings suggest that Facebook constituted a collective "Third space" for student enactment of counter scripts, augmented traditional academic networking, fostered "safe" havens for student democratic expression, and afforded learning communities for student co-construction of knowledge. Shortfalls identified include challenges of developing quality academic discussions and fostering student engagement at epistemological and conceptual levels to ensure deep learning. The study recommends a multi-pronged strategy that foregrounds contingent relaxation of academic authority, on-task student behavior, strategic alignment of powerful collaborative technologies with pedagogical designs, and learning needs and styles of students.

Keywords: Facebook, constructive disruptions, disruptive technology, meaningful engagement

1. Introduction

Pessimist constructions of technological disruptions of pedagogy fail to adequately capture the complexity of the context in which higher education delivery unfolds, and the sophistication of the learners involved. Literature on the pitfalls of disruptive technological innovations (Social Media, Web 2.0 collaborative learning environments) emphasises challenges of engaging a wired generation with limited attention spans (Prensky, 2005, Baron and Maier, 2005), and Social Media's distractive nature (Pierce and Vaca, 2008; Watters, 2010; Warman, 2011). Other studies have reported Social Media's violation of copyright laws through instructional cheating software (Seitz, Orsini, Gringle, 2011) and subversion of asymmetrical relations of power between academics and students (Selywn, 2007; Rambe 2011). While these studies locate the potential drawbacks and unintended consequences of adopting Social Media, they are either inconclusive on or have downplayed the tremendous potential of these emerging technologies to enhance deep learning.

The thesis of this paper, therefore, is that there is dearth of literature that articulate the positive educational incentives activated by disruptive technological innovation in higher education. As such, the relationship among disruptive technologies, student meaningful learning and effective pedagogical delivery remains unknown or speculative. Yet, when Social Media environments are tightly anchored in constructivist, knowledge-centred learning environments where dialogical discourses and on-task academic behavior are sustained, they present profound opportunities for deep scholarly engagements. As such, conceptual framing of Social Media studies within the operational logic of binaries is flawed and less informative for capturing the complexity of technology-enhanced pedagogical innovation in higher education.

This study explores whether the academic appropriation of disruptive Social Media in tertiary learning derives some constructive gains for learners and academics. The research also investigates the constitution of the Community of Inquiry (CoI) instantiated by lecturer-student and peer-based interaction in a Social Media-enhanced environment. The rest of the study is structured as follows: provides a literature review, theoretical framework, and a methodology. These articulations are followed by a presentation and discussion of findings, implications for pedagogy and a conclusion.

2. Literature review

Disruptive technology innovations

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The concept "disruptive technology" has evolved significantly from the time Christensten (1997) invented it to explicate new technology entrants' accumulation of value and their displacement of traditional ones in established markets. Disruptive technologies constitute trajectories of performance offered by technological alternatives (Danneels, 2004) including shifts in behavioral practices that accompany them. In academia, a [technological] disruption arises when educators use technology in ways that the original inventors and designers might never have imagined (Gower et al., 2001). Academics who deploy technological tools in novel, unexpected ways enable researchers and designers to (re)conceptualise the social world from different perspectives, culminating in the development of influential innovations (ibid). At university, a shift from a transmission pedagogical mode, pre-packaged content and lecturers as authority figures towards an informal, constructivist mode that foregrounds knowledge construction and student control of learning presents diverse pedagogical opportunities for deep learning.

Redecker, Ala-Mutka, Bacigalupo, Ferrari and Punie (2009) highlight that the adoption of [technology-enhanced] learning 2.0 strategy necessitates fundamental innovations at the levels of pedagogy, and technology. *Technological innovations* necessitate the provision of authentic learning resources; embedding learning in engaging, multimedia environments; supporting individualised learning processes, and equipping learners with powerful tools for knowledge exchange and collaboration. *Pedagogical innovation* underlies the recreation of the learning environment to ensure collaborative learning activities unfold and a definition of learners and lecturers' roles.

3. Pessimistic constructions of disruptions

Research on Social Media as a vestige of academic concern emphasises its distractive nature (Watters, 2010; Warman, 2011; Pierce and Vaca, 2008) and appropriation for vertical surveillance and enforcement of discipline (Boyd, 2007; Albrechtslund, 2008; Fuchs, 2010, Grodzinsky, Gumbus and Lilley, 2010). Other studies highlight that Social Media render backstage opportunities to academically-challenged students to challenge academic authority and contest asymmetrical power (Selywn, 2007, Rambe, 2011). It also subverts copyright laws through its plagiarism and cheating practices (Seitz, Orsini, Gringle, 2011), phishing and spreading of viruses.

Distractive technology

Social Media perceivably distracts the less academically motivated students from learning. Watters (2011) bemoans educators' erroneous assumption that instant messaging encourages off-task behavior in class, the same way the exchange off-topic messages and informally passing of "notes" can be disruptive. Given the ubiquity of Social Media-enabled phones at South African universities coupled by student's "texting culture," the aforementioned practices conceivably generate chaos and lack of concentration. The volume of tweets exchanged, student's limited attention spans, loss of context as information flows across different interactants and platforms are some drawbacks of Social Media communication (Fincham, 2011).

Academic ambivalence about appropriation of Social Media is explained by student enactment of hidden counter scripts involving public critique of academics' teaching practices on their personal blogs. Liew (2010) articulates that despite their social constructivist affordances, blogs' blurring of formal and informal spaces and their diverse back-talk processes (from joking, vicious grievances, slander and rumour) complicate their potential use for meaningful learning. Teenagers' critique and public embarrassment of educators and academic authorities on their blogs compel universities to question their academic value (ibid). Similarly, despite Facebook's potential to foster peer-based academic networking and collaborative inquiry, Selwyn (2007) documents its use by academically challenged students to contest asymmetrical educator-student offline relations, and its affordance of backstage opportunities for such students to be disruptive and challenging (ibid).

Vertical surveillance

Albrechtslund (2008) reports on how casual digital conversations on social networking sites are targeted by the U.S. National Security Agency to nub criminal activities in the United States. Academics often exploit Social Media for vertical surveillance of student of-task behavior, while universities' disciplinary committees are blamed for intercepting student social communications on social networking sites. Such communications often serve as incriminating evidence for sanctioning, disciplining or expelling students. The monitoring of student online activities by academic authorities is

conceived to constitute an invasion of privacy, disruption of personal autonomy, something analogous to parents snooping in diaries or listening in on phone conversations (Grodzinsky, Gumbus & Lilley, 2010). Fuchs' (2010) finding on Salzburg students' use of social networking site, studiVZ suggest their general awareness of social networking providers' access and use of personal data, and this critical information behaviour explained their declining of advertising gimmicks.

Academic dishonesty

Escalating incidences of plagiarism, inappropriate citations and violation of copyright law account for academics' hesitation to appropriate Social Media in higher education. The "copy-cut-and-paste" generation frequently exploits the powerful affordances of Web 2.0 technologies to re-organise, edit, remix, recreate, repackage content for republication, thus plagiarising texts with impunity. Seitz, Orsini and Gringle (2008) articulate You Tube-sanctioned academic cheating involving the posting of instructional cheating videos online. Their findings suggest the presence of technologically aided instructional cheating on exams, homework and assignments, and the popularity of cheating videos judging from the positive affirmations they received from viewers.

Szabo and Underwood (2004) identify fear of failure and the temptation to use freely available information on the Internet as plausible explanations for student engagement in academic honesty. Their study report that more than 30% of the 291 participants surveyed admitted to copying information from the Web and incorporating it into their assignments without acknowledging their sources. Threats of using Social Media to concoct information or duplicate peers' work in progress and projects often discourage educators from appropriating Social Media.

4. Productive (re)constructions of disruptions

Recreating context

Fincham (2011) discusses how a Social Media application, Storify, enhances journalists and learners' ability to contextualize information streams by embedding dynamic images, live text, tweets, even Facebook status updates, and integrating them with the context provided by the journalist/ learner. Real time streams of information enhance re-imagination and recreation of context and contribute to engaging students with limited attention spans. Perez (2008) documents how a Stanford University Professor reconfigured a Wi-Fi enabled classroom by seamlessly integrating collaborative Social Media tools like forums, blogs, wikis, chat, social bookmarking, microblogging, and video conferencing. The Social Media classroom enabled the conduct of live lectures interlaced by collaborative learning activities like micro blogging, video viewing and collaborative writing of wikis. It, therefore, constituted an innovative, participatory platform were curriculum materials were embedded into Social Media tools to leverage collaborative engagement and transform traditional instruction.

Fostering transparent learning communities

Watters (2011) demonstrates how educators can exploit Social Media-enhanced applications like Remind101, Poll Everywhere, and Celly (SMS-based group messaging) to anonymously text reminders / updates to students, give student feedback and execute quizzes, and organizing study groups respectively. Armstrong and Frankin (2008) relates how a Stanford University Computer Science professor and his class developed Facebook applications that sustained a social constructivist learning environment. This environment enabled students to showcase their projects as they evolved, and constituted a networking platform for consulting with seasoned software developers and bloggers on their projects. Given that higher education now evolves in a high information society, King (2011) advocates the adoption of Social Media as a necessary innovation that fosters universities' engagement with communities where this knowledge is generated.

5. Theoretical Framework

Community of Inquiry (CoI)

Garrison and Cleveland-Innes (2005) highlight the necessity of creating a Community of Inquiry where interaction and reflection are sustained; ideas are explored and critiqued; and processes of critical inquiry are scaffolded and modeled. CoI identifies key elements of an educational transaction from a process perspective (Akyol and Garrison, 2008) that allow for a dynamic interactions and meaningful pedagogy in a text-based environment. The CoI framework comprises three interdependent and

dynamic structural elements: social presence, cognitive presence, and teaching presence (Akyol, Garrison and Ozden, 2009).

Social presence underscores intentional communication and expression of a feeling of belonging to a given community that recruits interactants' participation in knowledge building processes. Garrison (2009) defines it as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352). Social presence activates discourses and critical inquiry by allowing co-present online participants to recognise the common norms and values within which they operate and mutually of their collective goals.

In asynchronous communication, learning emerges at the intersection of social and cognitive presence, where students are inducted from socialisation towards deep intellectual inquiry. The three main categories of social presence are affective communication, open communication, and group cohesion. (Akyol, Garrison and Ozden, 2009). In an online learning environment, affective expression is the ability of online learners to project themselves through text-based verbal behaviors like para-language, self-disclosure, humor, emotional expressions and values. Open communication underscores provision of a risk-free learning climate in which participants trust one another enough to reveal themselves. Group cohesion refers to the development of a group identity and the ability of participants in the learning community to collaborate meaningfully (Boston et al, 2009).

Cognitive presence is the "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison, Anderson, and Archer, 2001, p. 11). Cognitive presence is critical to the generation and sustainability of a community of inquiry focused on the exploration, integration, and testing of concepts and solutions (Garrison and Cleveland-Innes, 2005). It underscores critical problem solving processes, negotiation of meaning and the activation of intellectual processes that enable cycles of information seeking and deep engagement. Systematic discourses underlie educator and student interaction with each other, with content and technology to ensure higher levels of cognitive development, meaning making and collaborative problem solving. Garrison and Cleveland-Innes (2005) remind us that while high interaction may be reflective of group cohesion, it does not directly create cognitive development or facilitate meaningful learning and understanding as interaction directed to cognitive outcomes is characterized more by their qualitative nature.

Teaching presence underscores the design of the pedagogical environment, facilitation of learning and definition of participants' roles. Akyol, Garrison and Ozden (2009) foreground the regulatory and mediating role of teaching presence that entails three areas of responsibility: design and organization, facilitating discourse, and direct instruction. Garrison and Anderson (2003) conceive teaching presence to underlie the macro organisational and intellectual attributes of the learning design environment that enable student sustained involvement in on-task behaviour and deep forms of engagement. The determination of student misconceptions and the delivery of specific task driven resources and content constitute part of this learning package.

6. Research questions

- Does student appropriation of Social Media in university contexts constitute and manifest constructive disruptions? If so how?
- How are the different components of a community of inquiry articulated through lecturer-student and student-peer engagements on Facebook?

7. Methodology

Virtual ethnography was employed as a methodological approach. For Creswell (2007) ethnography is the study of an intact cultural or social group (or individuals within a group) based primarily on observations over a prolonged period of time by a researcher in the field. The current study examined the "lived experiences" of a virtual community in situ, as they interacted collaboratively in an established social network. As Fourie and Schurink (2011) suggests, the ethnographer records the voice of informants where the interactions happens with the intention of studying the cultural concepts and generating a cultural portrait. The current study sought to develop rich in-depth descriptions of the productive dimensions of disruptive innovations by examining how students appropriated technology to engage in deep interactions that transcended their traditional networks. Lecturer-student and peer-

based interactions on Facebook provided rich, formative accounts of how interactants navigated and made sense of their academic world.

The Case Study

The study examined two first year Information Systems (IS) clusters at a South African university. Their module covered three courses: Introduction to Information Systems (IS), Microsoft excel and Microsoft Access. While the first course was largely a theoretical course delivered using the lecture mode, the latter courses involved lectures which were accompanied by practical exercises and timed quizzes in computer laboratories that tested student understanding of taught concepts. Face-to-face lectures were conducted in conjunction with an institutional learning management system that hosted learning materials (slides, readings, course planning tools, collaborative tools) for student use.

To supplement these transmission delivery modes, a departmental Facebook group was created to render a communicative and consultative environment for learners with content-related queries and learning difficulties. The IS Department expected the 450 students constituting the two clusters to open Facebook pages and join this group. To heighten student online presence, the Department awarded a 2% course mark to all students who fulfilled these requirements. The course convener introduced the researcher to the students, articulated his research agenda and signalled his intention to interact with them on Facebook. A regular IS lecturer who taught the student clusters was designated as an online administrator who addressed academic queries from students, fulfilling the teaching presence responsibilities. The course convener maintained social presence on Facebook but marginally participated in Facebook discussions. As such, the lecturers employed Facebook as a useful cognitive scaffold for students with learning difficulties by reinforcing issues they taught in class. To heighten collaborative engagement and ensure inclusivity of varied student learning styles, lecturers allowed three options for Facebook interactions, namely:

- *Private inbox*-personal web spaces for sending private messages to peers and lecturers.
- *Discussion board*-specialised discursive space through which students publicly consulted.
- *Wall*-an accessible public space where students collaboratively networked with peers and the lecturer.

Of the 450 students, 165 participants posted 414 posts. These participants posted 154 wall posts, 121 discussion board posts, and 139 posts to the administrator's inbox over two semesters. The lecturer-peer and peer-based interactions ranged from academic (theory, practical queries), logistical (announcements, exam and test scheduling, lecture venues), academic related (extra lessons, scholarships, conferences) and course administration (missing marks, submission deadlines) and social queries.

8. Data analysis

CoI variables were employed to develop a rich cultural portrait of how the interactants appropriated disruptive innovative technology (Facebook) to construct social meaning from the pedagogical content they exchanged. As Weiberger and Fischer (2006) suggest, the epistemic focus of learner's contributions should examine whether learners are engaging in activities to solve the task (on-task discourse) and differentiate specific epistemic activities to solve a task.

Table 1: Analytical framework: community of inquiry

ELEMENTS	CATEGORIES	INDICATORS
Social Presence	Open Communication Group Cohesion Personal/Affective	Learning Climate/Risk-Free expression Group Identity/Collaboration Self projection/ expressing Emotions
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Applying new ideas
Teaching Presence	Design and organization Facilitating discourse Direct instruction	Setting curriculum and methods Shaping constructive exchange Focusing and Resolving Issues

Source: Akyol and Garrison, 2008

9. Presentation of findings

Table 2: Applying community of inquiry

ELEMENTS	CATEGORY EXAMPLE	INDICATOR
Social Presence	Open Communication Please will you put up an announcement on vula (a LMS) explaining what preparation we need to do for Task 5. *Your lecture was not very clear about this* [Student posting]	Free Expression Misconceptions about task expectations for which clarity is inquired
	Personal *I think it is very unfair for an announcement to have been made less than 2 hours* before a rescheduled lecture at 1pm today.	Expression of unfair treatment caused by a late announcement
	Affective Take it from a 3rd year: *There is not an Information Systems Department in the whole of Africa that has power of matching UCT for academic quality*!!! [Jonathan]	Affective emotions Student's strong affection about his university's elite status. University's ranking marshaled for self projection
	The lectures were so boring. I didn't go to them and and I am not prepared to study a whole chapter just for a 5min test [..] *No offence to anyone but yeah the quizzes sucked* [Melissa]	Expression of disappointment and disgust at less engaging lectures
Cognitive Presence	Exploration *This is an information systems course where technology should make life easier so why is it that all my courses have* their slides on the LMS BEFORE the class and us, who are doing and information systems course don't have our slides on even a week AFTER the lecture*... im trying to figure out wh*	Perceived contradictions between the expected values of a technology course and its practical delivery
	Exploration *A literature review means, you must try to summarise the topic provided by reading a range of articles, books and the Internet*. on how to hand in, you must submit a hard copy to [name given] and send it to turnitin.com for plagiarism check.[Wonder]	Information Exchange Peer-based exchange of useful information
	Resolution So i think the latter option would be sufficient. The search thing you can get working without the connection to the Database. *I used a program called Zoom Search engine*	The use of new programs not taught in class suggests that students were creatively applying new knowledge drawing on knowledge and concepts acquired in class
Teaching Presence	Facilitating Discourse *That would mean you did not have thorough understanding of what ERP is all about, how it originated and where the best software can be found*. Enterprise Resource Planning are network enabled business tools that […]	Shaping Constructive Exchange Explanation of a theoretical concepts
	Direct Instruction The IF function needs to have some sort of comparison to operate properly. A very common type of comparison is greater/less than (>/<). *These math symbols can be used to form logical expressions like "A2 < 40000", which in English means "Cell A2 is less than 40000"*	Focusing and Resolving Issues Practical problem resolution

NB: All extracts in this work are original and are not corrected for grammar.

10. Social presence

The creation and sustenance of a collaborative learning community is critical to student proactive involvement in learning and their ultimate satisfaction with the learning processes. Social presence is articulated through student expression of affection with the learning environment, their close contact with their learning communities and passion to sustain on-task behaviour.

Affection

In transmission pedagogies student felling and mental dispositions towards the course are assessed through summative course evaluations, whose impacts are to improve the successive cohort of learners (and not the current stream). To the contrary, Facebook was constructively disruptive to the extent that it enabled students to assess and evaluate the courses and /departmental practices as the course progressed. As one student affectionately complimented:

> *Take it from a 3rd year: There is no Information Systems Department in the whole of Africa that has power of matching UCT for academic quality!!!*

The student expresses a deep affection for his department by giving it a superlative evaluation in comparison to other African IS departments. The remark constitutes a salient evaluation of the teaching programmes, quality of content delivered and possibly the inclusivity of the learning environment. The several exclamation marks after the compliment are reminiscent of an enriching personal experience coming from an avid, task-focused student.

Open communication

Sustaining dialogic interaction and multi-voicedness in online learning communities necessitates the development of shared learning goals, social practices and common intentions. Continuous, transparent communication, and open inquiry into course requirements and addressing logistical issues that contribute to student meaningful experiences becomes quite critical. Contrary to student congregation around the lecturer to pose mundane questions on general course administration after lectures, Facebook pre-empted these questions by creating a central repository of queries and responses publicly accessed by all students. Some of the queries students posed which were accessed via the public Facebook discussion board are highlighted:

> *Please will you put up an announcement on the LMS explaining what preparation we need to do for Task 5. Your lecture was not very clear about this.*
>
> *I called up Prof Brian Habana (pseudonym) once enquiring about doing his PHP course and then I relocated to Durban. What's on offer via correspondence?*
>
> *My laptop does not have Microsoft Access installed and when I enquired at Information and Computer Technology Services they informed me that due to Microsoft licensing they are unable to install it for students. Is there any other means of obtaining Access which I am unaware of?*

Not only did Facebook enable students to articulate their misconceptions about content areas, rather it constituted an informal, innovative proxy for lecturers' prognosis and diagnostic assessment of student understanding. Facebook offered a "cozy," less threatening space for student discussion of the technical challenges they were confronted with in their courses and opportunities for soliciting their redress. For academics, Facebook innovatively pre-empted student questions through provision of group announcements, and responses that were publicly accessed by students.

Expressing emotions

Social presence played out through student democratic expression of their dispositions and perceptions towards lecturers' delivery methods. For Garrison and Anderson (2003) social presence creates the climate for intellectual collaborative interaction and precedes the support and articulation of discourses. Learners shared collaboratively their experiences of multiple choice quizzes (MCQs), which they wrote weekly to test their grasp of content had been taught. The discussion topic "What has been your experience of the MCQ tests? Do you think that they were fair? & why?" ignited tough and unapologetic responses:

> *I will have my say there. The lectures were so boring. I am not prepared to study a whole chapter just for a 5min test. Vula (LMS) itself had many problems like one week it just crushed and other times you got given 8 options for a MCQ. And MCQs were just another problem with IS. No offence to anyone but yeah the quizzes sucked. [Yolanda]*
>
> *i am appalled by my performance in task two. none of my formulas made sense and when i tried to practice it still was not working out. the quiz was tough, are we meant to read the information in our text books? i was taken aback because not most of the stuff we do in lectures was related to the quiz, or was it just me? [Joachim]*

The disappointments with the quizzes were founded on uncreative lectures; unreliability and malfunctioning of the institutional LMS and perceivably faulty design of quiz tests. Although the authenticity of these claims is debatable, it is envisaged that such public critique was instrumental in sensitising Faculty about perceived pedagogical and technology-related flaws in course delivery**.** Facebook served as a deliberative space through which students complained about inadequate course administration processes like late announcements on change of lecture venues:

> *I think it is very unfair for an announcement to be made less than 2 hours before the rescheduled lecture at 1pm today. Many of us did not read the announcement and sat in leslie [venue] at 2pm waiting for the lecture. Surely an announcement could have been put up earlier in the week.*

The computer mediated nature of Facebook allowed students to grumble more as it shielded them from intimidating, physical features characteristic of facial interactions. More so, Facebook created a "student regulated space" where they enacted a sense of personal ownership of the space. Unlike the LMS that they conceived as an institutional provision they had no control of, Facebook was a personalised space they were already familiar with before lecturers recommended it. It therefore, provided a quasi-formal, grievance handling platform where student questioning was not constrained by class size, in-class inter-group dynamics, or lack of time.

Group identification

Facebook organically created a collective learning community whose interactions potentially activated deep learning. The enactment of a collective identity and articulation of mutual interests enabled the fostering of cohesive social relations on Facebook. A feeling of a collective identity and collegiality manifested in the appropriation of inclusive pronouns like "we" and "us," depicting some semblance of solidarity:

> *Hey, how long does it take b4 we get our IS Lit Review marks back? are you marking as they come in or do you wait we all hand in b4 you mark?? [Olinda]*
>
> *Hello Salah, For the reviews do we need to search for it even if we have enough information from text books [Nyasha]*
>
> *Many of us did not read the announcement and sat in leslie (venue) at 2pm waiting for the lecture [Meshia]*

The shared academic destiny concept therefore, constituted a subtle prerequisite for strong group cohesion and student progression towards more meaningful learning. Affirmative greetings like "hello" demonstrate recognition of peers' social presence and their acceptance of each other as co-participants.

11. Cognitive presence

Exploration

Garrison and Anderson (2003) project exploration as a clear recognition of a complex problem and the quest for a solution. Students bewildered by quasi-academic puzzles saw Facebook as a "cool" habitat for exploring them and soliciting solutions. In the postings below a critical student questions the logic of lecturers' procrastination in delivery lecture slides:

> *this is an IS course where technology should make life easier so why is it that all my courses have their slides on the LMS BEFORE the class and us, who are doing and information systems course don't have our slides on even a week AFTER the lecture... im trying to figure out what sense that makes? How can we follow lectures without something in front of us to look at? [Trish]*

Facebook democratised communication by giving students the voice and agency to question inadequate departmental practices that perceivably undermined meaningful learning. Talk-back processes and transactional feedback afforded a perceivably democratic platform for academics to be accountable for their actions. In response to the aforementioned query, the lecturer expressed some reservations on uploading slides before a lecture:

> *I have noted your concern. Lecturers have been advised to post slides on the LMS as soon as they can. However, there are several arguments around posting slides before lecture.*

Giving information

Creating an informing framework is critical to the sustenance of a learning community. The population of the informing space with authentic intellectual resources activates meaningful interactions and triggers on-task behavior that leads to construction of knowledge. Yet the provision of intellectual resources should be complemented by information seeking, information giving and information retrieval skills that drive transformative learning. In the posting below, a knowledgeable peer responds to a student query on entrepreneurship opportunities in IS:

> *some friends have done some research on possible functionalities of an ecommerce. You should be able to think in that direction. do some research on some e-commerce websites, integrate relevant functionalities in your own work. thats it...understand what entrepreneurship means and identify potential areas in IS where such opportunities can exists.....this topic is linked to innovations and creativity in IS.*

The knowledgeable peer's elaborate response demonstrates that Facebook was harnessed as a useful collaborative learning space for sharing ideas, perspectives and personal knowledge thus complementing classroom practice. This deliberative space also provided digital trail of student's thought processes that enabled students to draw on peers' ideas and critique in their explorative discovery processes.

The possibilities for creating and self-publishing of content are some of the hailed attributes of constructive disruptions. The interaction between Facebook participants is indicative of the benefits of mass intellectuality:

> *i'm still not clear on what i should know […]things that came in the 5min quiz, i had read prior and thought that they were irrelevant, like the question about ERP.*

The elaborate response below demonstrates the capacity of Social Media to focus attention of interactants and engage in collaborative knowledge construction:

> *Enterprise Resource Planning are network-enabled business tools. ERP marks the current generation of resource planning and is a central system, which replaces "islands of information" with a single, packaged software solution that integrates all traditional enterprise management functions […]*

Reciprocal peer teaching and cooperative learning evolved through the dialogic interactions and diverse feedback loops. With increased academic scaffolding, students claimed ownership of the learning process, assumed responsibility for their learning, pushing their learning trajectory even higher.

12. Teaching presence

Assignment of tasks

Teaching presence is the adhesive that keeps academics and learners as a cohesive entity and allows all academic consultative processes to be task-driven and meaningful. It emphasises the organisation and design of the curriculum and learning materials and the assignment of academic tasks. The following discussion between the lecturer and student is indicative of teaching presence component-assignment of academic tasks:

> *Hey, I kinda share the same problem. I thought we were to get into groups doing Literature reviews? What should we do? [Jullian]*

The pedagogical role of learning design and the assignment of learning tasks is self evident in the lecturer' feedback:

> *Hi guys in literature reviews: you need to read the work on that subject/topic you have been given....read textbooks, academic papers, journals etc in libraries or internet as long its is credible work. Write what you have found in your own words as well as your understanding in class and reference it properly [Lecturer].*

In explaining a literature review, the lecturer articulates her expectations of students and connects classroom practice to students' private study skills. The lecturer also rendered some guidance on student requests for extra lessons to ensure inclusive learning and avert differential empowerment. The lecturer-student conversation below is a typical example:

> *Hi, I don't feel learn enough in tutorials, cause being only one tutor, not able to answer questions. In task 2, I didn't actually know what to do in tutorial when they were suppose to help us use formulas. could we have another day for extra tutorial not compulsory [Laura]*
>
> *It would be difficult to arrange for another class but will see what we can come up with. However, in case you have a problem, don't hesitate to make an appointment with your Excel lecturer or me or ask your lecturer in the next class to repeat it [Lecturer]*

Shaping constructive discourses

Constructive dialogic discourses revolved around interpretation of academic concepts and recruitment of feedback from the lecturer. Facilitating lecturer-student and student-peer interaction does not only activate student motivation, but heightens student involvement in task-oriented activities. The student-lecturer interaction below the lecturer differentiates information from data:

> *I don't understand the difference between Data and Information [Phineas]*

In response, the educator renders an example to clarify the distinction:

> *Data: The numbers 100 or 5%, completely out of context, are just pieces of data. Interest, principal, and interest rate, out of context, are not much more than data as each has multiple meanings which are context dependent.*
>
> *Information: If I establish a bank savings account as the basis for context, then interest, principal, and interest rate become meaningful in that context with specific interpretations. Therefore, Principal is the amount of money, R100, in the savings account. Interest rate, 5%, is the factor used by the bank to compute interest on the principal.*

Meaningful discourses necessitated the application of abstract concepts in real world contexts to improve student understanding and meaning making. This application of de-contextualized knowledge enabled students to make connections between prior knowledge and new knowledge and to transfer concepts learned across different contexts. Limited contact time often challenged academics not to explain complex concepts in depth resulting in student misconceptions and confusion:

> *I have been assigned topic 2.6 for the literature review but there is a problem. I can't find information about importance of hardware standards and I have been looking for couple of days now [Terrence]*

In a response, the lecturer elaborated on hardware's practical application:

> *The primary considerations for any hardware configuration are: ease of connectivity to a given network; ease of connectivity to external systems and organizations; consistent performance of integrated components in our networked environment, successful in-house experience with the chosen product and configuration; serviceability by external hardware repair providers etc [Lecturer].*

The elaborate explanations helped students to develop a deep understanding of concepts that were superficially discussed in lectures; the challenge was leveraging these interactions from information transmission towards constructive dialogue and knowledge construction.

13. Discussion

Constructive Disruptions

Networked learning

The disruptive innovation of appropriating Facebook for academic purposes fostered a democratic virtual classroom where academics and student roles were profoundly transformed in support of networked learning. While the mandate of academics as academic authorities remained significant, it was innovatively transformed to that of dialogue facilitators, information managers, knowledge brokers, and knowledge management consultants. These roles played out in their elaboration of concepts, handling of student critique on Faculty's inadequate course management practices, and validation of student opinions during collaborative dialogues. Social Media also constructively subverted traditional delivery mode by disintegrating classroom walls and opening up new knowledge centres beyond lecturers. As some scholars (Downes 2006, Siemens 2008) argue, Web 2.0 technologies are transforming higher education from a hierarchical teaching approach to a networked approach wider than a community of practice. Web 2.0 technologies enable the innovative transformation from an educational model structured around courses, regulated by universities using a 'broadcasting' model in an enclosed environment, to an adaptive model owned by individuals (Kop, 2008).

However, the aforementioned results were not always straightforward but rather fuzzy. In the domain of curricula design, knowledge validation and assessment procedures, academic boundaries were reinforced rather than relaxed. In spite of some semblance of peer-based collaboration in knowledge building, the majority of Facebook postings were lecturer directed. These findings support Czerniewz and Brown' (2010) view on the reinforcement of boundaries in academia involving academics' shaping of student experiences through the curriculum design, determination of teaching times and venues; task assessments and assessment criteria. Therefore, constructive disruptions were contingent and context driven-involving a push-pull relationship among pedagogical, learner, and technology variables.

Democratised communication

Constructive disruptions were also constituted in Facebook's liberalization of student communication with academics and mass intellectuality. Student deliberative democracy manifested in the diversity (intellectual, social, logistical) of queries handled on Facebook, which could not otherwise be addressed under the constrained lecture contacts. The multiple postings on Facebook resonates with student conception of Facebook as a "safe space" for posting those queries which academics would normally perceive as "unsophisticated," "ridiculous" or "naïve" in face-to-face contacts.

Hidden counter scripts

Critically, Facebook constituted an alternative, collapsed context for student launch of "hidden" counter scripts that contested educators' hegemonic scripts. The dominant scripts included lecturers' conceivably inflexible assignment deadlines, poor design and assessments of quizzes, lecture venues changes, and procrastination in delivering lecture slides. Student critiqued academics for these shortcomings, including unimaginative, boring lectures and problematic course designs. This finding backs Liew's (2010) report on how blogs offered backstage opportunities for students to joke, complain and slander academics and school authorities leading to public scrutiny and embarrassment. Blogs thus afforded students "digital hidden transcript" where they re-scripted hierarchical student-teacher relations through satirical portrayal of educators' classroom practices (ibid). Therefore, Facebook created an alternative "Third space" (Guiterrez, 2008) for public articulation of personal agency and subverted perceived asymmetrical relations of power.

Social habitat for psycho-social and emotional comfort

Facebook also created a "safe' haven for the sharing of psycho-social and emotional support between students. Student expressed their anxieties about pending assignments, complex conceptualization expected of them, and challenges of meeting strict deadlines, and hence their requests for extra lessons. Learner voice and personal agency on Facebook contradict traditional lectures where

garrulous students' hegemonic voices dominate discussions, and silence introverts, shy and less confident students. This finding consummates Conole and Alevizou's (2010) finding that case study-based research into Web 2.0 tools affirms their positive influence on learners' voice and renders invaluable insights on these Net savvy learners' experiences and expectations of learning.

For academics, however questions, queries, and complaints rendered them an informal, reasonable proxy for making inferences about student grasp of difficult topics, concepts and issues. As Ng'ambi and Brown (2009) aptly reiterates, questions are representations of the search for knowledge, and embodied in questions is implicit knowledge about students' current understanding. Facebook postings, therefore served as informal rubric for assessing of common student misconceptions and lack of understanding.

14. Constitution of community of inquiry

Social Presence

Learning community with collective identity

The Facebook environment generated an information repository that integrated personalized learning environments with collaborative networking. Public postings via walls and discussion board broadened academic networking while personal messages via inboxes served as props for personal reflection on content and self-regulation of learning. Honorific, inclusive pronouns like "we" and "us" resonated with student self identification as a cohesive networked community.

Asymmetry of Community of Inquiry components

Although all three dimensions of presence were represented in lecturer-student and peer-based interactions on Facebook, social presence component was more dominant than the other variables. While social presence is a pre-condition for successful cognitive presence, the fact that it was proportionately far higher than cognitive presence was regrettable. This signifies complexities in scaffolding collaborative discussions and academic networking to ensure deeper engagement levels. Facebook was supposed to be an exclusively creative space, in Punie & Ala-Mutka's (2007) characterization, learning spaces that emphasize personalization, creativity and innovation in learning, as opposed to reproducing knowledge. Rather than reinforce teacher dominance in information provision, Facebook should have been a reflective space for bridging different learning forms (face-to-face live lecture streams, asynchronous and asynchronous mode), and different media (text messages, voblogs, audio recordings, graphics) to enrich student learning experiences.

Cognitive presence

The cognitive presence domain displayed limited salience of higher categories namely *integration* and *resolution*. The information exchange dominated the cognitive presence layer, with limited opportunities for deeper reflexive engagement with concepts, and connection between theory and practical issues. Although nascent attempts were made at drawing on theoretical concepts in constructing discourse during lecturer-student levels, there was a dearth of such constructions at peer-based collaboration level. As Garrison and Cleveland-Innes (2005) suggests, interaction in online learning environments should transcend social engagements and simple exchange of information to capture the qualitative dimensions of structured and systematic communication aimed at influencing critical and reflective thinking. The challenge in Web 2.0 collaborative environments is whether teachers are willing to embrace the promises of student empowerment at the peril of their own embarrassment. Arguably, by exposing teachers' classroom practices to public scrutiny, students' digital testimonials could heighten teachers' sense of professional accountability (View, 2010).

Teaching presence

Much of teaching presence was linked to didactic teaching approaches which targeted student completion of tasks (assignments, elaboration of concepts, explanations of technical procedures in practical assignments) and not the facilitation of peer-based discourses. As Rourke and Kanuka (2009) contend, CoI suffers at the level of application because deep and meaningful learning does not occur as described in the framework as students are not engaged in the constituent processes

proposed by the framework (cited in Annand, 2011). To the contrary, Web 2.0 technology-enabled pedagogical innovation requires transformation of teaching and learning processes, support for learner-centred learning approaches, group work and inquiry projects, interactive forms of learning that trigger reflective, deeper, participative learning, problem solving and creativity (European Commission, 2008).

15. Implications for pedagogy

Given that low-level components of cognitive and teaching presence dominated Facebook postings, educators' support of dialogic interaction and intellectual engagement was critical to student deep learning. Scaffolding of students necessitated their in-depth training in epistemological and conceptual development of knowledge. This training would embrace making logical connections between theoretical knowledge and its application in real world contexts. The academic dominance in knowledge production on Facebook buttresses Czerniewicz and Brown's (2010) view that ICTs are being appropriated to cement long-standing pedagogical roles rather than challenge them. Therefore, for technological innovation to play a more pivotal role in pedagogical change, academics should rethink its deployment in ways foster student critical thinking at epistemological and conceptual levels. A multi pronged strategy where question prompts are used to activate student search for new perspectives and ideas, where intellectual conversations merge based on multiple theoretical concepts, connections are made between existing and new concepts, and where concepts are applied in real world contexts is necessary.

If Facebook spaces can be reconstructed as student-regulated spaces, Punie and Ala-Mutka (2007) observes that they should enable reflexivity, allow learners to take a step back to reflect upon their own work and learning, hence enable connections to learning from one's personal context. Such a controllable environment demand academics provision of information prompts that activate students search for new information relating to specific concepts, lecturer provision of URLs to important websites and connecting student to experts on specific problem areas and concepts. More so, task design that demand student collaboration in clusters and academic tasks that require searching for information and immersion in experts' content (live lecture videos, articles, audio repositories, e-books) and intellectual dialogue is necessary.

While the Facebook learning environment rendered students freedom of expression and agency, there were challenges with regard information quality assurance. Therefore, educators should strike a logical balance between control of task design and assignment of learning activities, and student self-regulation and facilitation of their meaningful task completion. As Kop (2008) suggests, an understanding of how students learn is critical to good educational experience and sound teaching strategy as it allows teachers to relinquish control if and when appropriate and provide learners with additional choices, without them feeling overwhelmed by uncertainty about the new unknown to be learned.

16. Conclusion

The central thesis of this paper is that contemporary literature's preoccupation with the potential negative consequences of Social Media disruptions constitutes an determinist view of technology that fails to adequately substantiate the complexity of meaningful technology-enhanced pedagogical delivery. This pessimism downplays opportunities for exploiting disruptive technologies to induce tremendous changes to pedagogical delivery by instituting student-regulated, collaborative learning environments. Such environments present opportunities for student exercise of deliberative democracy, create "hidden" counter scripts that contest academics' hegemonic scripts, and generate alternative, networked information repositories for student deep learning. Disruptive technologies also demonstrate capacity to provide less threatening, talk-back processes for less confident students, and complement learning in traditional spaces (lectures, LMS).

For academics, Social Media technology afforded the pre-empting of frivolous, unsophisticated questions from academically challenged students, and rendered diagnostic platform for assessing student misconceptions about learned content. These provisions potentially enhanced academics' ability to modify and adjust their teaching styles and foreground complex concepts and issues. Lastly, the Social Media learning environment created a networked community of inquiry that afforded academics and students a collective digital identity and a "cosy" habitat for student expression of their academic anxieties, fragilities and learning challenges.

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