Learner-generated content as a pedagogical change agent

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While the affordance of Web 2.0 tools in enhancing learning and teaching is well documented, effective use of these tools still eludes most practitioners. New technologies are simply used to recreate the hierarchical structure present within the four walls of the classroom and that signifies power and control online. The apparent ease at which technology is able to situate itself with the old and contemporary pedagogical practices is perhaps its biggest weakness and hinders effective use in learning and teaching.

The paper reports on the findings from six projects where learner generated content was made explicit in course outcome. These projects where carried out between year 2010 and 2011 (some projects are still on-going) in the faculty of Technology and Built Environment (TBE) and Te Puna Ako at Unitec New Zealand and involved students and staff from various courses ranging from levels 2 to 7. An overview of the six projects and the Web 2.0 tools used in the courses is given and the implications of making learner generated content an explicit course outcome is discussed.

Keywords: Pedagogy 2.0, learner-generated content, Web 2.0, social constructivist, learner-generated context

Introduction:

Sam Seidel (2011) in his video on Vimeo (http://vimeo.com/22591307) talks about Hip Hop genius: remixing high school education. Seidel (2011) starts by reflecting on his experience teaching a group of youths in a juvenile prison. While Seidel (2011) found that there were many factors that separated him from the youth he was teaching, 'Hip Hop' was the one element that every student in his class could relate to. Thus this became the main force driving learning and teaching in his class, where he observed disengaged students emerge as 'leaders and experts' (Seidel, 2011, 0:28). The Hip Hop culture stems from creativity and innovation, where

resources are limited and hard to come by, thus often unused or redundant resources such as a family garage became the evolution platform for people to perform and practice (Vargas, 2003). However other barriers such as finance and correct equipment did not stop the Hip Hop culture from advancing and entertaining millions. Seidel (2011) thus defines the ethos of Hip Hop as Hip Hop genius and calls this: 'creative resourcefulness in the face of limited resources' (Seidel, 2011, 1:41) which would be referred to in the Hip Hop community as 'flipping something out of nothing' (Seidel, 2011, 1:47).

Seidel (2001) draws an analogy to education and what educators can learn from the history and evolution of Hip Hop. Seidel (2011) outlines that for a Hip Hop artist to maintain freshness, he/she has to mix and remix the old with the new. The artist has to be innovative, creative and has to blend different approaches while working within the constraints of resources available to create, capture, engage and maintain the attention of the audience and the followers (Vargas, 2003). Educators around the world face similar issues, thus educators have to find a platform(s) that enables them and their students to perform within the institutional limitations and barriers that exist (McLoughlin & Lee, 2008c; Robinson, 2003). The educators have to mix and remix the old with the new to maintain currency and engagement. They need to move away from the traditional paradigms of learning and teaching to a mix that serves the students needs in the current time. Because of the need to engage students in the process, empower them and understand them, creativity and innovation has to become the focus of learner development and teaching.

Web 2.0 and learner-generated content

The notion of Hip Hop aligns well with the ethos of Web 2.0. Flipping something out of nothing takes shape as Web 2.0 allows innovation and creativity at no cost since most Web 2.0 tools are free to use. However there is a need to reconceptualise learning and teaching before innovation, creativity, learner empowerment and engagement can take place (Chen, 2002; Robinson, 2003, 2011).Web 2.0 tools provide educators a platform that enables students to take 'charge' of their own learning. This could be learner driven while giving the educators a platform to mix and remix the old with the new pedagogies to facilitate a learner-centered experience and practice contemporary pedagogies that serve the needs of a student in the digitally evolving world. Web 2.0 tools have the potential to be the fundamental platform and a catalyst that leads innovation (McLoughlin & Lee, 2008b), as did the unused garage and other equipment in the evolution of Hip Hop that reflect the imagination, collaboration and ownership of the creators. Likewise Web 2.0 offers affordances that enable collaboration and creation that the students and teachers could own and use in their learning or teaching (Anderson, 2007; Luckin, 2008; McLoughlin & Lee, 2008a, 2008c).

McLoughlin and Lee (2008b) espouse the 3ps of pedagogy (Pedagogy 2.0) for use of Web 2.0 tools in education. (i) Participation – collaborative environment that allows for co-creation, sharing of ideas and learner participation in the wider online communities (ii) productivity – active engagement of the learner in creating knowledge and understanding collaboratively or individually and (iii) personalisation – the learners choice of content and community that is conducive to its own learning. Pedagogy 2.0 allows for innovation, creativity and student-centredness by leveraging off the affordance of Web 2.0 tools that enable user-generated content either as an individual or as a community (Bruns, 2007; McLoughlin & Lee, 2008c; Sener, 2007). Web 2.0 tools offer students control in their own learning and allow them to give learning their own flavour and colour – ownership – as the evolution of Hip Hop did for a certain group of people to express their own interest. The adherent social nature of Web 2.0 thus has serious implications on how learning happens and seems to lend itself to social constructivist pedagogies (Anderson, 2007; JISC, 2009).

In traditional learning paradigms where the teacher is solely responsible for scaffolding the learner in the zone of proximal development (ZPD) (Vygotsky, 1978), contemporary pedagogies through the use Web 2.0 tools

place the focus on how to enable the learner to achieve the knowledge and skills needed through collaboration, guidance and assistance from other students, the teacher or an expert who is now accessible through the use of the Web 2.0 tools. Thus the focus in the ZPD when compared to traditional pedagogies is not on transfer of content to the learner, but rather on encouraging social/collaborative learning (Borthick, Jones, & Wakai, 2003). The interactions between the learner, teacher and external agents/experts through the use of Web 2.0 tools and technologies gives raise to learner-generated content and context (Anderson, 2007; Efimova, 2004; Luckin, 2008; McLoughlin & Lee, 2008c).

Methodology

A participatory action research (PAR) method, defined as "collective, self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social practices" (Kemmis & McTaggart, 1988, p. 5) was used. This effectively led to the formation of a Community of Practice (CoP) with the staff and students. The practice within the community was focused on improving learning for students and improving teaching practices for teachers. The researcher's role in these projects was to meet with the staff and students on a weekly basis for pedagogical (staff) and technological support (staff and student) and to collect data from the participants (teachers and students) that emerged from regular feedback and reflections in the CoP. Pre and post student and staff surveys were conducted; data was also elicited from blogs and reflective videos which were created as a part of the project and the course. The data collected outlined the developmental journeys of both the student and teacher for the duration of the projects/courses and produced the findings. These transformational journeys documented by the data gathered, captured the changes in how and why learning for students was changing and in what ways making learner-generated content an explicit course outcome impacted on teacher pedagogy and curriculum. The feedback and reflections gathered in the CoP on a weekly basis formed the facilitation and design of learning activities for the following week.

Project overview

Context

Te Puna Ako is an academic development unit at Unitec Institute of Technology that provides teachers/lecturers academic support on programme design, effective teaching, assessment design, and learning and teaching in general. The unit also provides support to staff who are keen on exploring technology in learning and teaching. The researcher is an academic advisor (learning technologies) at Te Puna Ako, who undertook these projects in collaboration with other faculties, departments and staff.

Certificate in Autotronics (Level 4)

The students in this course had to attend a four-hour lecture four days a week. The remaining hours in the day were used for practical workshops for building circuit boards and doing other experiments. Learning was confined to the four walls of the classroom and the teacher was perceived as the sole source of knowledge for

students to learn from.

The researcher started working with the staff teaching the course early in 2010. Working alongside the teaching staff, Web 2.0 tools such as Google Doc, Blog and Google Buzz were introduced to the staff and students in semester 1, 2010. The affordance of the Web 2.0 tools was modeled to the staff and students and learner-generated content was gradually embedded in the course as an outcome in negotiation with the teaching staff. The teaching staff were introduced to YouTube and with this knowledge of using Smartboard, videos were made introducing each topic that was previously covered in lectures. The Smartboard videos outlined the key learning outcomes of each topic and the students were required to explore the concepts further with the help of the teacher as and when required. Google Buzz was used to form a student community and used as a platform for students to share resources and ask questions after watching the introductory videos. Google Buzz was used by the teacher to provide scaffold where needed by the students and to start discussions on new topics in the course. The four-hour lecture time was now used to engage students in discussions from questions arising on Google Buzz and the teacher allocated time for one-to-one sessions for students to book if they needed help. Students are using Blogger to build an eportfolio as part of the course assessment. Two staff members were involved in this project teaching 30 students.

Table 1 – Observed impact of LGC on learning and teaching in autotronics level 4 course

Web 2.0 tools	*Technologies*
Google Docs, Google Buzz, Blogger	Student owned Netbook/laptop, departmental flip camera, Smartboard
Impact on learning and teaching	
- Teachers see themselves as facilitators/guides - Teacher focuses on affective aspects of teaching - Transition in pedagogy (from delivery to social, collaborative and adaptive learning) thus lecture time is now used for discussion in class - Learner Autonomy - Types of content/learning material, ownership, active engagement (learner generated artifacts), social and collaborative - Formation of learner community - F2F time when needed with the teacher - Assessment had to be redesigned and is now portfolio based	

Certificate in Boat Building (Level 3-4)

An authentic learning environment is used (Herrington, 2006), as students in this one year long course build two boats, each with different specifications and increasing in complexity and difficulty. While the authentic learning context offered effective learning opportunities for students, it was not fully utilised as the teacher played a leading role in 'spoon-feeding' the students throughout the course. Students were prescribed a textbook for the course and submitted a hand-written logbook at the end of the course for assessment. While the facilitation of the course had some aspects of learner-generated content, it did not however leverage off all the opportunities offered in the process.

At the start of semester 2, 2010, the researcher started a collaborative project with the two staff involved in teaching this course. A part of this process was to scaffold the staff into using Web 2.0 tools and also implement some Web 2.0 tools in the course for students to use. As a result YouTube, Blogger and Google Buzz were introduced and incorporated into the learning process. Students were asked to use their blog as a platform for creating an eportfolio and three flip cameras were bought for students to use in class to take videos and pictures. The researcher met the class once a week to guide and help the students who needed technological help and met the teaching staff regularly over the semester for pedagogical and technological input. This project involved one teacher and one technical assistant teaching a group of 18 students.

Table 2 – Observed impact of LGC on learning and teaching in the boat building course

Web 2.0 tools	*Technologies*
Google Docs, Google Buzz, Blogger	Student owned Netbook/laptop, departmental flip camera, Blackboard and chalk

Impact on learning and teaching
• Teacher sees himself as a facilitator/guide   • Transition in pedagogy (from delivery to social, collaborative and conversational learning)   • Learner Autonomy   o   Access to types of content/learning material, ownership, active engagement (learner generated artifacts), social and collaborative, peer-peer feedback, support and scaffold   • Increased team work and formation of learner community   • Blurring of informal and formal learning context   • Merger of 'theory' and 'practical' as an authentic learning environment   • Assessment had to be redesigned and a marking rubric was co-created with students

Certificate in Marine Technology (Level 4)

This course was 'taught' to the students, the teacher provided students with pdfs, and PowerPoint's via Moodle (institutional LMS) and students attended a lecture every Monday for the duration of the course. The course was mainly teacher-centred with some degree of active student engagement. Students in the course attended workshops in the week where they created metal artifacts as a part of their assessment. A distinct boundary between theory and practical was noted. The teacher 'transmitted' his knowledge and content to the students in lecture and the students where to manifest this knowledge in the practical sessions through creating the metal artifacts.

Semester 1, 2011 - a netbook was made a minimum requirement for the course and students were provided with iPod's (Gen 4, 1 per group of 5) to use for the duration of the course. Web 2.0 tools were incorporated in the course; students attended an orientation session where they created Gmail accounts and a blog on Blogger. An overview of Picasa, Youtube and Google Docs was given. Ongoing support was provided to the students and staff by the researcher. The researcher spent an hour in class every week to help students with any difficulties arising from the use of Web 2.0 tools and technologies. The researcher also met with the lecturer for the course regularly providing pedagogical and technological support as needed. This project involved one staff member and 20 students.

Table 3 – Observed impact of LGC on learning and teaching in the marine technology course

Web 2.0 tools	Technologies
Google Docs, Google Buzz, Blogger, YouTube and Picasa	Student owned Netbook/laptop, departmental iPod
Impact on learning and teaching	

- Teacher sees himself as a facilitator and lead learner
- Transition in pedagogy (from delivery to social and collaborative)
- Learner Autonomy
    - Access to types of content/learning material, ownership, active engagement (learner generated artifacts), social and collaborative, peer-peer feedback, support and scaffold
- Increased team work, engagement and quality of work when compared to student work from past years
- Blurring of informal and formal learning context and formation of learner community
- Merger of 'theory' and 'practical' as an authentic learning environment
- Assessment had to be redesigned and a marking rubric

Certificate in Automechanical Engineering (CAME) (Level 2-3)

The CAME is a foundation level course that has no pre-requisite for entry. As a result, the course has a high number of students who are seeking another chance to a formal qualification. A high majority of the students who enrolled in this course dropped out of school probably because of the 'boring factor' and the passive role they played in the learning process, where learning is seen to be a spectator event. These students most likely fell victims to their own active social life where they played a more inclusive and active role.

Students accepted on the course were sent a letter stating they needed to have a Netbook with a webcam and wifi capability. Students who could not afford to buy one were loaned one from the institutional pool to maintain equity and to avoid disadvantaging any student due to their economical background.

The researcher was involved in setting up this course (Semester 1 and 2, 2010) mainly working with the 4 staff on the facilitation and assessment aspect of this programme. Web 2.0 tools such as Google Docs and Blogger were integrated in the learning process. And students were provided with portable digital cameras for use in the class and in field trips that were arranged by the teaching staff. This project involved four staff members teaching a cohort of 80 students.

Table 4 – Observed impact of LGC on learning and teaching in automechanical engineering course

Web 2.0 tools	Technologies

Google Docs, Google Buzz, Blogger, YouTube and Picasa	Student owned Netbook/laptop, flip camera and student owned devices (camera)
Impact on learning and teaching	

- Teachers see themselves as facilitators of the course
- Transition in pedagogy (from delivery to social and collaborative learning)
- Learner Autonomy
  - Access to types of content/learning material, ownership, active engagement (learner generated artifacts) within defined scaffold and guideline, social and collaborative, peer-peer feedback, support and scaffold
- Increased team work, engagement, self-esteem and confidence
- Blurring of informal and formal learning context and formation of learner community
- Merger of 'theory' and 'practical' as an authentic learning environment, students build a cart as a part of embedded assessment
- Assessment had to be redesigned into small manageable learning packs

Certificate in Civil Engineering (Level 4)

In semester 2, 2010, a project was established to explore the affordance of iPads with the civil engineering students and two staff. The staff and students involved in the project were each given an iPad to use for the duration of the course. The project was originally designed to replace the mono-functional scientific calculator that the students were required to buy that cost them 450NZD. The iPad however provided other opportunities that could be utilised in the learning process. As a result, a set of Web 2.0 tools were integrated in the course. The researcher worked alongside the students and staff providing assistance at a technological and pedagogical level. Web 2.0 tools used in the course were Google Buzz, Google Docs, augmented reality apps Theodolite, Blogger and document editing and creation apps for the iPad such as Documents 2, which also allowed synchronization with online services such as Google Docs. 18 students were involved in this project along with two teaching staff.

Table 5 – Observed impact of LGC on learning and teaching in the civil engineering course

Web 2.0 tools	*Technologies*
Web Apps: Google Docs, Google Buzz, Blogger, Youtube and Picasa iPad Apps: Documents 2, Buzz, Theodolite, scientific calculator (m48),	Institutional iPad (Gen 1, 16G wifi model), portable 3G wifi modems
Impact on learning and teaching	

- Teachers see themselves as facilitators of the course
- Transition in pedagogy (from delivery to social and collaborative learning)
- Learner Autonomy
    - Access to types of content/learning material, ownership, active engagement (learner generated artifacts), social and collaborative learning, peer-peer feedback, support, scaffold and ubiquitous access and connectivity, learner generated context (bridging the learning context)
- Increased team work and engagement
- Instant validation of result for students when out in the field
- Blurring of informal and formal learning context and formation of learner community
- Assessment had to be redesigned and an assessment rubric had to designed

Graduate Diploma in Higher Education (GDHE): Social Learning Technologies (SLT)

The SLT is a staff capability development course for use of technology in education. SLT before its redesign was taught as a block course, where staff attended a 4-day program delivered on-campus. The researcher was involved in the redesign of the SLT course (early 2010) and co-facilitated it in semester 2, 2010. This involved seven Unitec staff and one external student. Learning in the SLT course was facilitated by establishing an internal community of practice that focused on building relationships with/between students and enabling learner-generated content in the learning process through the use of Web 2.0 tools and mobile technology such as Twitter, learner created blogs and other Web 2.0 tools the learners explored on their own as a part of the course. All students in the course were provided with an iPhone 4 to use for the duration of the course. The full SLT course outline, requirement and assessment outline can be accessed here.

Table 6 – Observed impact of LGC on learning and teaching in the SLT course

Web 2.0 tools	Technologies
Web Apps: Moodle, Twitter, Wordpress, YouTube and Picasa iPhone Apps: Twitter, Mail, Safari and various other apps	Institutional iPhone 4 (16G), student owned laptop/Netbooks/mobile devices
Impact on learning and teaching	

- Role of the facilitator in the course was of a technology steward
- Learner Autonomy
    - Access to types of content/learning material, ownership, active engagement (learner generated artifacts), social and collaborative learning, peer-peer feedback, support, scaffold and ubiquitous access and connectivity, learner generated context
    - Full learner control and direction within the requirements and confines of the course.
- Increased team work and engagement
- Formation of PLN through the use of Twitter and blog
- Blurring of informal and formal learning context and formation of community of practice
- Learner-generated content as a pedagogical change agent (Cochrane & Narayan, 2011)

Discussion

The six projects discussed in this paper provide a snapshot of the impact making learner-generated content an explicit course outcome had on the courses, learning and teaching in general. Figure 1 highlights the alignments that were observed and is discussed further in this section.

The six projects made use of a variety of Web 2.0 tools (Google apps, Twitter, Blog, iPhone apps, geo-tagging etc) and technologies (iPad, iPhone, iPod, flip camera, Netbook etc). The radical pedagogical changes noted in these projects were not because of the technology itself, but rather how it was used, thus pedagogy played an intricate role in the process. Because technology is able to sit comfortably even with old pedagogies is perhaps its biggest weakness (Reeves, 1997); technology alone is not capable of creating a transition in pedagogy, however it plays the important role of an enabler in the process. By making learner-generated content an explicit course outcome, the teachers in the projects had an outcome of their own to achieve which drove the entire process. 'What can I do differently to enable my students to create content?' became the main question for the teachers in designing and facilitating learning. This is where teachers involved in these projects started exploring effective use of Web 2.0 tools and alternative pedagogies for use with their students to encourage content creation and participatory learning. Due to the 'ease of use' factor and social and participatory nature of Web 2.0 tools, content creation can either be an individual activity or a social process, where content is created collectively through exchange of ideas and negotiated understanding. However, because Web 2.0 tools and artifacts created have open access, individuality slowly demises and becomes a social process.

The learner-generated content as a course outcome and the affordances of Web 2.0 tools coupled together became the pedagogical change agent. The six projects made a gradual transition from traditional lecture model learning and teaching to situating learning within social constructivist pedagogies. Making learner-generated content as a course outcome was noted to have an impact on all four teacher competencies (i) design, (ii) facilitation, (iii) assessment (iv) evaluation and the role, responsibility and engagement of the learner in the learning process.

The reverse engineering effect

The end goal in each project was to prompt learner-generated content, hence the teachers in the projects had to make radical changes to the previous course structure they had followed, in some cases, for years. A high degree of pre-planning was required to embed active learning components in learning activities that required students to think critically and work collaboratively. These design changes had an adverse effect on the facilitation of the course. Again because the students are creators, where the role is reversed, the teacher's role was observed to be that of a facilitator or a guide, who provided 'just-in-time' advice, motivation and encouragement. This reversal of roles also gave students freedom/autonomy and ownership (student video), thus the formal and informal boundaries of learning were observed to have been blurred, as students interacted with information, advice, people and content beyond the four walls of the classroom. In cases students undertook group activities at home over the weekend and in real work places, recording these situations using their own mobile phones or digital camera and sharing it on YouTube. This shows that given the opportunity, students can create a learning context (learner-generated context (Luckin, et al., 2008)) for themselves that is conducive to their own learning preference and at the same time creating authentic context (Herrington, 2006) for other students in the class to

engage and learn from.

The learner's participation and interactions in these formal and informal learning spaces had to be considered, hence there were implications on how students were assessed. In all six projects there was a shift from summative assessment techniques to formative and these were mostly portfolio based using a blog. This is where student communities and personal learning networks (Siemens, 2005) were formed as students followed each other in the class and included subject experts from around the world on their blogs and in some projects using Google Buzz and Twitter. This also provided a platform for continuous interaction and an opportunity for peer-scaffold and feedback amongst students, as well as a platform for the teacher to provide feedback and guidance. The interaction between the students and the student and teacher using the Web 2.0 tools provided a platform for continuous evaluation for the teachers in the project to assess the effectiveness of the course and places where improvements were required. Normally courses are evaluated at the end of their duration, when students fill out a questionnaire that elicits student perception on how the course could be improved; in the six projects described, evaluation was embedded within the learning process and this happened regularly.
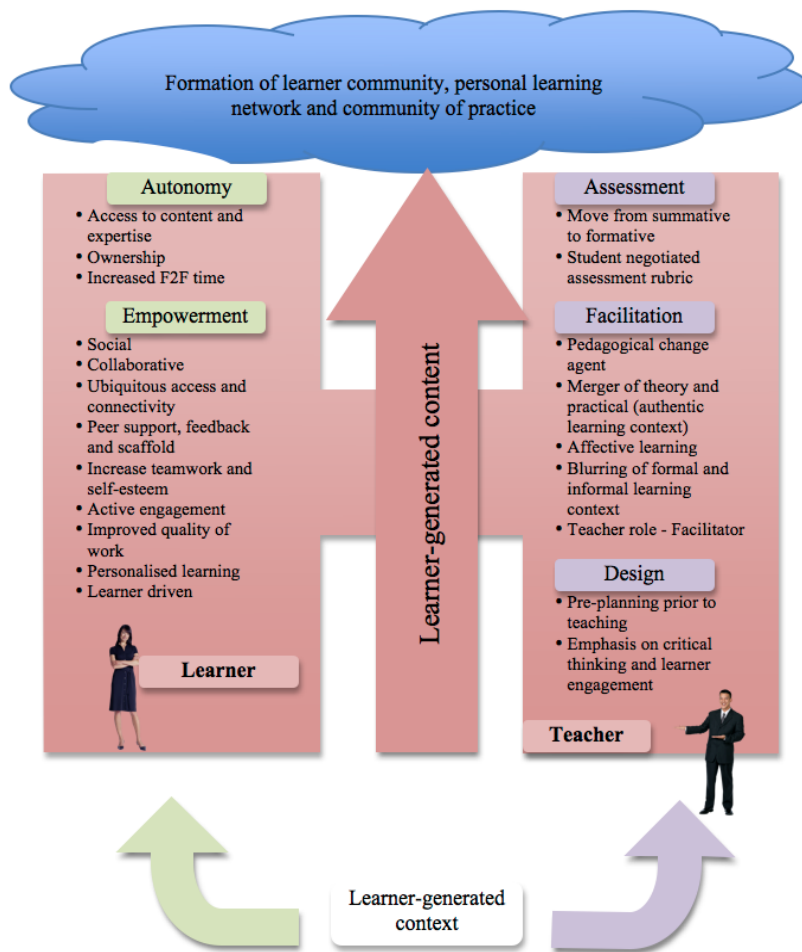
JISC (2011) project report titled "Transforming curriculum delivery through technology" outlines the impact integration of technology had on curriculum delivery as:

Table 7 – Impact integration of technology on curriculum

Efficiency gains and quality	*Learning and teaching enhancements*	*Transformation*
o Streamlines processes o Quality improvement	o Choice, access and flexibility o Authenticity and employability o Assessment and feedback o Participation, retention and achievement	o Institutional change o Wider influence o Learner-centred landscape

While the report attributes these transformations to the use of technology, a deeper look into the projects that made up this report shows that it was rather how the technology was used that made the real difference. In several projects outlined in the report, technology was used to engage learners into creating content as a part of the course. Thus it is the overarching arm of participatory pedagogies that outlined effective use of Web 2.0 tools and technologies in the design of the projects discussed in the JISC report or simply learner-generated content as a course outcome.

Figure 1 – The impact of making learner-generated content a course outcome

Formation of learner community, personal learning network and community of practice

Autonomy
- Access to content and expertise
- Ownership
- Increased F2F time

Empowerment
- Social
- Collaborative
- Ubiquitous access and connectivity
- Peer support, feedback and scaffold
- Increase teamwork and self-esteem
- Active engagement
- Improved quality of work
- Personalised learning
- Learner driven

Learner

Learner-generated content

Assessment
- Move from summative to formative
- Student negotiated assessment rubric

Facilitation
- Pedagogical change agent
- Merger of theory and practical (authentic learning context)
- Affective learning
- Blurring of formal and informal learning context
- Teacher role - Facilitator

Design
- Pre-planning prior to teaching
- Emphasis on critical thinking and learner engagement

Teacher

Learner-generated context

Conclusion

Just as Seidel (2011), adjusted his teaching style to suit the interest of the students he was teaching by making Hip Hop the core driver of learning in the juvenile prison, the educators, using emerging technology, have to adapt to new practices and pedagogy to engage the students and make effective use of the Web 2.0 tools. Teaching is as important as learning, thus the learner and the learner's role and the teacher and the teacher's role are equally important and this needs to be reflected in the learning process. Traditional teaching paradigms place an emphasis on the teacher and its role; the learner's role is at a minimum or is as a 'spectator'. The findings from the six projects discussed, outlines that just the one small change of making learner-generated content an aim for the course can help align several processes and practices in learning and teaching. In all six projects learner-generated content proved to be the pedagogical change agent that brought into question many of the old (traditional) practices staff involved in the projects had used for years. This slowly brought about a transformation that not only impacted the teacher but also had positive effects on the students and learning and teaching in general.

While learner-generated content pedagogy or Pedagogy 2.0 was the core driver in the projects, technology played an important role, as the relationship between learner-generated content and technology cannot be differentiated. They formed a symbiotic relationship in the process. The willingness of the staff involved in the projects to try 'something new', the change in mindset when it came to learning and teaching and the researcher's timely intervention with appropriate pedagogical and technological advice within the CoPs all played an important role and influenced the outcome.

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