Designing Online Assessment Tools for Disengaged Youth

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Abstract

This article reports on the development of online assessment tools for disengaged youth in flexible learning environments. Sociocultural theories of learning and assessment and Bourdieu's sociological concepts of capital and exchange were used to design a purpose-built content management system. This design experiment engaged participants in assessment that led to the exchange of self, peer and teacher judgements for credentialing. This collaborative approach required students and teachers to adapt and amend social networking practices for students to submit and judge their own and others' work using comments, ratings, keywords and tags. Students and teachers refined their evaluative expertise across contexts, and negotiated meanings and values of digital works, which gave rise to revised versions and emergent assessment criteria. By combining social networking tools with sociological models of capital, assessment activities related to students' digital productions were understood as valuations and judgements within an emergent, negotiable social field of exchange.

Keywords - Flexible learning, authentic assessment, cultural capital, social media, disengaged youth, online learning and assessment tools

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Introduction

We are a multi-disciplinary team of researchers at an Australian University engaged in exploratory digital design work in assessment. Our designs are based on the theoretical and practical 'bridges' between three distinctive educational models:

1. Principles and practices of Authentic Assessment;
2. Sociocultural models of interaction, tool use and learning;
3. Bourdieuian sociological concepts of capitals, exchange and field.

These provided the conceptual bases and rationale for digital, online social networks and learning tools. These tools were designed specifically for students who had left schooling and were voluntarily re-engaging through an alternative educational setting.

We developed a new conceptual model and online support tool for assessing the educational progress of disengaged youth who re-enter education via a network of 7 Flexible Learning Centres (hereafter FLCs), currently the largest and fastest growing centrally administered 'system' for these students in Australia. The FLC network provides a blend of nationally certified courses and formal curriculum material with social, cultural and arts-based education support projects that are informal in their delivery and assessment. The intervention described here drew on 'authentic assessment' (Stiggins 1987; Wiggins 1993) and 'assessment for learning' principles (Assessment Reform Group 1999) to create individual student profiles that both students and staff could access, edit and relate to their own and others' digital content in class, and outside of the typical school day.

What follows is the background to the study, a description of the site and the research design. We provide details regarding the methods, data sets and the approach used to analyse the data. An overivew of the findings is provided prior to the discussion and analysis which draws on Cope and Kalantzis' five modes of meaning.

Background

We adopted a sociocultural approach to assessment (Murphy and McCormick 2008; Boud, Hawke and Falchikov 2008) that views the quality of the learning experience as most important, as it draws on assessment for learning (Black and Wiliam 1998; Black et al. 2003; James 1998) to involve students in peer assessment, developing criteria and identifying standards. We reframed this approach to assessment with Bourdieu's work on field, habitus and forms of capital exchange (Bourdieu 1977, 1993a, 1993b; Bourdieu and Passeron 1990; Bourdieu and Wacquant 1992). Specifially, the act of assessment involves a change and conversion of student cultural capital into 'value' through potential peer and mentor judgement and, indeed, the granting of formal institutional capital via credentials, grades and verifications of capacity and competence. Seeking a sociological view of the normative goals of authentic assessment, then, our position was that assessment is about the fair and transparent conversion of students' skills, artefacts and performances – conceptualized as embodied and material capital – into the institutional capital of grades, credentials, certification and other forms of officially recognized capital that is transportable to and convertible in other social fields of employment, further education and civic life (Carrington and Luke, 1997).

This grouping and application of theory allowed us to create a model that attempts to build upon the habitus of students and teachers within the sub field of flexible learning, in the overlapping times and spaces of flexible learning (Brader 2009, 2010). The sociocultural approach highlights the importance of the student's learning trajectory. The online assessment tool we designed to support our conceptual model specifically documents the student's learning journey spatially via Google MAPs, and tracks the student's participation in the learning activities over time through automated timestamps.

It is within the field of formal education that assessment tasks, examinations, tests, and their judgement; marking, grading and moderation are distributed through systems that bolster a dominant policy discourse of education for employment. The administrators of these systems require teachers, students and peers to evaluate assessment products, document dynamic judgement processes, and subsequently

map these judgements against employment skills and career pathways. Bourdieu (1993b) describes these processes of judgement as *critique*, a type of sociological test operating in 'systems of classification and categories of perception' (p. 86), particular to the field in which they operate. In this context our online assessment tool operates to make visible disengaged students' capitals, skills and resources developed through their flexible learning experiences. Our conceptual model recognises the funds of knowledge (Moll, 1992) that these learners draw on with the online assessment tool providing novel affordances for the learner. Here, in our use of the term 'funds of knowledge', we refer to the social and cultural capital that learners bring to the FLC from their own social and cultural contexts. In our online and face-to-face fieldwork observations we tracked students and practitioners communicating and exchanging educational content, social skills and cultural resources across multi-context education sites, which Bourdieu (1993b) describes as the field (education) and sub-fields (flexible learning centres for disengaged youth) of cultural production. By expanding the systems of classification and categories of perception to include more popular cultural texts in the mix of what counts as knowledge, our model and tool increases the pool of resources and artefacts that 'count' in measures of these young people's employability. To illustrate how this pool of resources was expanded we draw on the concept of the learners' 'funds of knowledge' that derived from their particular social and cultural circumstances. Examples include the learners' skills and knowledge in music, photography and digital media.

Context

The research site for this design experiment is the Flexible Learning Centre Network, which is this state's largest non-state re-entry program, providing formal and non-formal education and training for 450+ disengaged students across five FLC schools, including several mobile, outreach services. The FLC Network aims to include the excluded with promotional materials stating that *'teaching and learning is characterised by small class sizes, a flexible curriculum that draws on the individual interest and needs, and a democratic pedagogical approach that encourages empowerment and autonomy'* (Edmund Rice Education Australia Flexible Learning Centre Network 2008, 1).

For institutions such as the Edmund Rice Education Australia Flexible Learning Centre Network (EREAFLCN) the reasons for young people's educational disengagement is not as important as is a desire to re-engage. Many disengaged students believe that attainment of educational capital, a form of cultural capital (Bourdieu, 1986), is a requirement for a contented life and vocation, and wish to re-engage for purposes of situational betterment and dispositions of self-awareness and self-esteem. Other students may have a need to re-engage with education in order to satisfy legal obligations or at the insistence of parents or guardians. The EREAFLCN aims to help young people to re-engage with education without judgement or prejudice regarding their reasons for enrolling. This purpose is enacted in the context of social engagement and an ethos of democratic community, pluralism and equity. Young people who attend the Centres must however meet certain criteria to enrol. One criterion is that students must have disengaged from mainstream education, which includes regular state and private schools. The primary aim of a Flexible Learning Centre (FLC) is student engagement in community and education.

The network currently employs over 100 staff — a mixture of teachers and aides, youth support and social welfare workers, counsellors and psychologists, who bring diverse training backgrounds, credentials and life experiences to the task. As these FLCs fall in between the gaps of traditional teacher education, social work, counselling, psychology and vocational education — there are few protocols available that are suitably broad enough for ongoing in-service training and professional development, and this situation has created an assessment problem, which our model addresses directly.

Our Argument

Although we do not treat disengaged youth as educationally deficit our research team works from a broad hypothesis derived from Bourdieu's sociological account of forms of capital. Based on empirical evidence and practitioner insights we assume that disengaged youth possess valuable life experiences, social and cognitive resources, which we categorise as their cultural and social capital. However, these young people are not prepared for regular school and standardised curriculum with the vital cultural capital resources that middle and upper class students bring to

school (Holdsworth, 2011;Teese, 2003;Connell, 1993). For the young people involved in our study “there is a mismatch between the logic and rhythms of policy” (Ball, 2009, p. Vii) and their social life-worlds (Hill, 2005). This is a restrictive factor for these students who struggle with assimilation into mainstream school sites, many of whom disengage from mainstream schooling and either discontinue completely or seek reengagement with differentiated approaches to education through flexible or alternative school sites (Lamb 2011; te Riele 2009, 2012).

These students however, do not always have access to standardised assessment, tests and examinations that provide credentials or institutional capital (credit points, certificates). Many flexible learning sites are unable to offer a comprehensive range of assessment choices and often offer a limited selection of Vocational Education and Training (VET) courses (te Riele 2012) which can also be difficult for these students to engage with. Without the necessary cultural capital (Bourdieu and Passeron 1990), inclusive of the inculcated discourses of schooling, skills and abilities to engage with standardised curriculum, these students are unable to assimilate into the school, college or university culture. Flexible Learning Centres (FLCs) are under-resourced compared to average middle-class mainstream state schools, exacerbating the gap in cultural and financial capital with affluent private schools. In this set of circumstances together with the ever widening gap with well-resourced schools (Gonski et al. 2011), the chances for FLC students to compete or gain access to high stakes exams have become virtually nonexistent.

Research Focus

Grenfell (1996) and Albright and Luke (2007) argue that schooling can and should translate students’ capitals via transparent rules into credentials with recurrent value across multiple contexts in adult societies. Using this insight, we designed an online assessment tool that encouraged capital exchanges by compiling quantitative and qualitative evidence of interaction associated with students’ artefacts, skills, resources and achievements. The online assessment tool supports students and their teachers to accrue textual, oral, visual and numeric evidence that compares and contrasts self-assessments with those of their peers, and subject-specific experts in a ‘whole systems’ approach that enables: 1) students to understand and document their own educational development with tools that allow them to upload

unlimited revised versions of their work; 2) provides teachers and youth support workers with new grounds to make the case for appropriate curriculum, counselling and careers guidance; and 3) reports and tracks student development using traditional and non-academic outcomes for funding and accountability purposes. The online assessment tool provides for the creation of hybrid pedagogical times and spaces at the intersection of curriculum and assessment to support the learner.

Our central research question is — what design features should inform future online tools that aim to assess the intellectual, social and aesthetic resources that disengaged youth bring to, and develop through, flexible learning environments? We have found, through analyses of the social practices associated with web 2.0 technologies, that our online assessment tool can assist the providers of flexible education to exchange their assessments of students' digital artefacts for institutional forms of capital (such as certificates, report cards, resumes, and employment references). This logical, democratic and transparent progression of assessment practices is suitably generic, yet specific enough to meet the needs of disengaged youth and their educators in the formal and informal spaces in which they learn.

Method

The project is a design experiment (Design-Based Research Collective 2003) in educational assessment. Innovative educators have used this research design, developed at Vanderbilt, Washington and University of California Berkeley, extensively in medium-scale curriculum innovation in United States schools (e.g., Cobb et al. 2003). It combines a rigorous approach to data collected on the effects of the model, with an interventionist approach to program development through action research. The intervention — an online assessment tool — was continually reviewed and revised in light of new empirical evidence of its effects, intended and unintended. The discussion section of this article reflects on how we framed our data gathering, intervention and analytic themes around four major principles that characterise theoretically informed design experiments (Cobb et al. 2003).

Before, during and after the pilot and prototyping phases of this design experiment we gathered data from multiple sources across five flexible learning sites and their network administrators who registered 450+ (full-time equivalent) student enrolments

each year between 2009-2011. Information from these sources, and our consultations with students and staff, directed our collaborative design decisions about the range of traditional and non- academic activities, outcomes and artefacts that the model needed to accommodate. We conducted pre and post pilot phase interviews with students and staff to ascertain their requirements and usage of the model during this phase.

Ethnographic methods – field observation, interviews and participant observation – were used in the study (Stake 1995) together with an exploratory documentation of five students' accounts and experiences with the designed intervention. Each of the five bounded cases focused on the learning experience of educationally disengaged students who attended the FLC schools during the observation period 18 months. During this time one of our researchers and co-author (Connolly 2011) worked at an FLC (three days per week for one school term) as a teacher and convener in a 'class' where the online assessment tool was trialled extensively. By incorporating the principles and practices of authentic assessment; sociocultural models of interaction, tool use and learning; and Bourdieuian sociological concepts of capitals, exchange and field, the units of analysis were the mediated actions of students which developed over time and were situated in the field of FLC education (Krange and Ludvigsen 2009).

We made use of the model's in-built reporting features to collate a series of detailed spreadsheets recording every possible type of interaction within the online model. Although we gave the qualitative data additional weighting due to its sheer volume, such database records form an important part of this method. Using standard descriptive statistics and textual analysis of the associated freeform fields we pursued a linear sequence of data gathering, while members of our team performed simultaneous analyses so that fieldwork observations, interviews, artefacts and database records continually informed our iterative design of the tool.

Our analyses centred on the meanings that students, teachers and administrators associate with the assessment of flexible learning experiences. We organised our data according to five question areas for all meaning making systems proposed by Cope and Kalantzis (2009, 176) for the analysis of multi- literacies. These question

areas and questions were as follows:

Representational: To what do the meanings refer?
Social: How do the meanings connect the persons they involve?
Structural: How are meanings organised?
Intertextual: How do the meanings fit into the larger world of meaning?
Ideological: Whose interest are the meanings skewed to serve?

To analyse text based and digital artefacts we reviewed the modalities of meaning outlined first by the New London Group (1996) and developed by Cope and Kalantzis (2009). Due to the capabilities of the online system, and our physical and human resources, we narrowed our focus to the following five modes of meaning: *written* and *oral* languages, *visual*, *audio,* and *spatial* representations. A suite of software applications assisted our team to produce thematic clusters from our datasets. We organised the analytic themes according to these five modes of meaning and subjected each theme to the five questions above.

Table 1 provides a summary of data gathered on the effects of the model before, during and after each design phase.

Table 1. Summary of Data Sets
Insert table here

As we developed, trialled and implemented this innovative online tool for assessing the capabilities of marginalised youth, we captured a wider range of their life experiences, resources and skills. In this way the online assessment tool facilitated the description of the students' educational achievements in both conventional academic and non-traditional courses of study (Krange and Ludvigsen 2009). The overriding assertion we deduced from these data gathering exercises was that these disengaged youth were well connected with peers and experts online. They typically presented us with little evidence of conventional learning documents in traditional subjects, yet readily signed into their multiple online social media spaces and presented us with numerous cultural productions of original multi-media content connected to peers and experts through informal feedback processes. In general,

although engagement with social media has become internationally popular with youth (boyd, 2007) not all students at FLCs were willing to engage with our intervention model. Some students were reluctant or refused to participate. However, the majority of students who were invited to participate in our trials did so willingly, often with a degree of enthusiasm.

Findings

In the context of our intervention, we now present in two sections our main findings from the data gathered and analysed. The first section summarises our contextual findings about the flexible learning centres, their uses and barriers to exchange while using our online assessment tool. The second section outlines the design decisions we made in relation to popular online social media practices in order for our tool to support our conceptual model.

Contextual Findings

It is no coincidence that the current trend for flexible delivery modes in education arose alongside the growth of mobile Information and Communication Technologies (ICTs) (Castells 1999, 2007). Our literature review identified hundreds of service providers espousing the benefits of 'flexible learning' in their modes of delivery, including government funded, community and commercial enterprises. Typically, providers refer to new developments in mobile ICTs as central planks of their services, placing emphasis on the flexibility of their system in order to accommodate the employment demands and constraints of 21st Century learners.

The research site for this design experiment is the Flexible Learning Centre Network, which is this state's largest non-state re-entry program, providing formal and non-formal education and training for 450+ disengaged students across five FLC schools, including several mobile, outreach services. The FLC Network aims to include the excluded with promotional materials stating that *'teaching and learning is characterised by small class sizes, a flexible curriculum that draws on the individual interest and needs, and a democratic pedagogical approach that encourages empowerment and autonomy'* (Edmund Rice Education Australia Flexible Learning Centre Network 2008, 1). The network currently employs over 100 staff — a mixture of teachers and aides, youth support and social welfare workers, counsellors and

psychologists, who bring diverse training backgrounds, credentials and life experiences to the task. As these FLCs fall in between the gaps of traditional teacher education, social work, counselling, psychology and vocational education — there are few protocols available that are suitably broad enough for ongoing in-service training and professional development, and this situation has created an assessment problem, which our model addresses directly.

Young people re-entering education via flexible learning environments present with diverse motivations and educational backgrounds, typically with repetitive patterns of failure and interrupted schooling (Brader 2004, 2010; Coles et al. 2002). To date, the FLC Network has relied on conventional assessment tools for developmental diagnostic purposes, exit assessment, and reporting to stakeholders. These assessments include standardised literacy and numeracy tests, psychological profiling instruments, and psychometric diagnostics for assessing learning needs, speech and hearing problems (Luke 2008). Many disengaged students occupy the bottom quartile on such conventional measures and thus, re-enter education assessed as deficit by the same measures they failed before exiting mainstream schooling (Comber and Kamler 2004). Yet several researchers suggest that these young people develop a rich repertoire of capacities and knowledge through youth and adult cultures, informal learning activities, new media and popular culture, and through their participation in peer, community and institutional networks (e.g. Heath and McLauglin 1993; Vadeboncoeur 2006). These repertoires, which we classify as forms of cultural and social capital, are readily ‘misrecognised’ by institutions and teachers (Bourdieu 1990; Oakes 1985), which acts as a barrier to the effective facilitation of authentic assessment exchanges.

Our team’s combined analysis of the FLC network identified a lack of instrumentation data on two key elements of students’ learning: 1) students’ social, cultural and experiential resources brought to the program; and 2) students’ social and interactional competences; networks, affiliations, aesthetic products and cultural identities that develop through FLC programs. The students and staff reported major developmental progress and individual breakthroughs in ‘soft skills’ such as verbal communication and critical literacies developed through music and art, negotiation skills, peer relations and networks, community service, self-confidence and

presentation of self. For a minority these gains translate into conventional achievement and credentials (such as, test scores, grades, certificates). Yet the FLC network has no systematic way of reporting important aspects of students' progress, which Ladwig's (2010) major review of research and theory on outcomes refers to as "non-academic" or "social" outcomes. Central to this problem is the lack of specialised training in educational assessment (Hodkinson 1992; Wagner 1998) by many FLC teachers, counsellors and youth support workers. As with others in adult and vocational education and within these flexible learning environments, these FLC staff members find difficulty in demonstrating their program efficacy to funding bodies and stakeholders, other than via conventional outcome measures of test scores and attendance. Despite their contextual salience, the invisibility of these 'soft' skills in formal educational institutions, the social or non-cognitive outcomes (Teese 2000; Luke and Hogan 2006), reinforces the current policy focus on traditional, mesurable academic and employment outcomes. Non-recognition of soft skills denies these young people's creative agency outside the typical school day, thus exemplifying the technical and philosophic limits of conventional assessment (Moss, Girard and Haniford 2006; Boud, Hawke and Falchikov 2008).

Our analysis indicated that the majority of education practitioners in this sub-field of flexible assessment were most comfortable with assessing oral modes of meaning but struggled to comprehend embodied and digital 'funds of knowledge' (Lyotard 1984, p. 6). This finding presented a restriction to the educational use of our model, as a way of identifying and exchanging forms of capital. In collaboration with all stakeholders we identified the practical needs of flexible learning providers for pedagogical, diagnostic, programming and accountability purposes. Our prototype model expanded the modes of assessment to reliably report and educationally capitalise on a broad range of textual, digital and performative life experiences, resources, educational and community accomplishments of students, wherever and whenever captured (Brader and Luke in press; Connolly 2011). However, this intervention required continuous research team assistance for the FLC staff to identify and document the digital representations of funds of knowledge that their students bring to, and develop through their flexible learning experiences. In the prototype phase we trained FLC staff to identify these digital artefacts, and to create assessment tasks that attribute multi-modal meanings to them. Table 2 summarises

431 digital works that students and staff uploaded during the six-month pilot phase, while Table 3 summarises that content's field category within our content management system (Animation, Blog, Design, Music, Video, Original Art and so forth). In separate work, we have documented artefacts and exchanges used on the online system (Luke and Brader in press).

Once the FLC staff members were familiar with the model's core assessment features we trained them to extract, cross-reference and analyse the descriptive statistics using the tool's inbuilt features, to indicate the modes in use across the network. The type and category of these digital artefacts suggested that students and staff from the FLC network were currently creating rich multimodal work, although only a fraction of this was formally assessed, and most of what was relied on conventional preset criteria prescribed via nationally certified training packages. The task at hand was to scaffold assessment exchanges and increase digital and assessment literacy amongst students and staff to increase the model's usage, and allow the descriptions, comments, ratings and tags associated with this type of content to add recurrent institutional value, which was readily convertible into tangible forms of institutional capital.

Table 2. Summary of Content Type

Table 3. Summary of Content Category

Insert tables here

Online Assessment as a Negotiable Field of Exchange

Having reviewed several online assessment systems we found that few had the required flexibility to identify the developmental processes of disengaged students' experiential learning. Kimbell and Stable's (2007) E-scape system is a commercially available exception that manages to capture the temporal processes of learning, rather than focusing primarily on polished final submissions. Yet it is a task driven, not a profile driven system, and this focus does not accommodate much of the reflexive, experiential learning that takes place in FLCs. Open source projects like Moodle (Romero, Venturaa and Garciaa, 2008) and the New Zealand, Mahara ePortfolio System (mahara.org/), have developed some culturally specific profile features with uses for disengaged youth, but they lack flexibility for FLC staff to use

without assessment expertise to document learning progress in certified and non-academic programs.

Drawing on existing assessment technologies and previous research findings of this particular content management system (CMS) (Bruns and Humphries 2007; Tan 2009) we know that continued use of our model relies on appropriate incentives for students, and efficiency gains for staff delivering flexible learning programs. We designed our model from a CMS created by researchers at this University to facilitate online community development (Yodel Services 2010). Our research participants informed all our design decisions and we carefully accommodated the distinct needs of students, staff and the FLC administrators to maximise the model's usage. The principles of authentic assessment, flexible learning and capital exchanges embedded within this model have been tested and validated by a select group of FLC students and staff, and the model is now available to the entire network for educational purposes determined by the staff. We anticipated the need to amend the model as social networking and e-portfolio technologies develop further, yet we also believe these changes will focus on the incorporation of cross platform gadgets, synchronisation and security issues, rather than the principles of assessment exchange as outlined here. What follows is an explanation of the CMS modules we have modified to satisfy the needs that users of the system have identified as important.

People: There are three types of people the model recognises as registered users: Students, Supervisors and Administrators. Students are able to upload and revise their own educational content, join groups, share their content with groups, discuss, comment, rate, tag and amend their own profiles, and enter and judge content in competitions. In addition, supervisors are able to make content, groups and profiles viewable to unregistered users through the public view function, create groups, create and administer competitions, add standards and rules to groups, and view all previous versions of content uploaded to the system. To allay FLC management fears that students might post inappropriate content or comments we placed the power to assign content 'public' status in the hands of supervisors and administrators only. Administrators have full access to all modules in order to manage users, groups, content and commentaries. These permissions are flexible enough for lead

students, who are those students who use the model to exchange and negotiate examples of their work for public consumption, and can be promoted to administrate a specific group, and eventually create and administer groups and competitions.

Content: The driving force of our assessment model is students' digital representations of educational content, which contain rich multi-modal meanings we simply call 'work'. Text documents, PDFs, Movies, Music, Spreadsheets, PowerPoint Presentations and Photos are the common formats that users can upload and share, but the distinguishing feature here is version control. This is distinct from popular social media spaces that do not focus on revising products, performances and artefacts to demonstrate learning processes and outcomes.

The version control feature facilitates formative and summative assessments by automatically saving all previous content and allowing the owner, administrators and nominated supervisors to view the trail of comments that led to an unlimited number of amendments. This function provides users with the ability to reflect upon multiple assessments of their work and resubmit revised versions, and as such is the model's primary method of capturing the development of student's learning processes. For example, a student can submit a piece of work and receive feedback from a staff member who suggests some amendments, which would qualify it for formal accreditation. If the student is keen to exchange their social and cultural capital embodied in this work into institutional capital, they can attend to the assessors' comments and resubmit.

The model also affords supervisors additional ways to manage assessment relevant content so they can upload standards, tasks and exemplars, and associate them with certified learning groups. For example, a staff member who teaches a vocational certificate course can create a specific group to manage all of the associated tasks, and direct students of that course to the appropriate unit outlines, criteria, multiple exemplars, assessment matrices and checklists.

Groups: Supervisors can create groups, which they can choose to be either public or private. They function like virtual classrooms, and can be created by staff at the request of students and administered in collaboration. It was important for our

assessment model to make visible non-academic educational outcomes based on student interest, as well as curriculum courses and traditional subject areas. Such interest-based student groups typically focus on popular youth activities such a scooters, music and graffiti art. It is these interest groups where the research team encourages and assists FLC staff to identify students' capitals and capabilities and consider their potential exchange value. For example, a student can upload a piece of English writing to their profile. Unlike most commercial e-portfolio systems, but similar to popular social networking services, the student must first become a member of a group, and then share the content with that group to receive any feedback from peers and FLC staff users. Our design decision to force all content to only become visible to others when shared through a group also responds directly to supervisor requests for a facility that provided evidence of group work activity.

Ratings, Keywords & Tag Clouds: Currently used in social media spaces and multi-media players as coding systems that categorise and allow for fast searches of content, five star ratings are easily open to abuse. For assessment purposes they are simplistic and mostly unproductive. Yet the notion of collating several rating combinations (self, peer and expert) has several benefits, especially as our model collates these ratings according to sub categories of social, cultural, economic and institutional capital. The model combines existing rating system practices with an automated ranking algorithm to offer students and assessors greater levels of complexity and transparency. This rating function operates as an informal, competitive incentive system that we designed to increase the number of assessment exchanges.

Similarly keywords and tags are gaining credibility as a source of research data that combines qualitative and quantitative elements, especially when represented through tag clouds (Marti 2008). These semantic visualisations act as a marker of social interaction with digital content, which functions as a suggestive device rather than a precise depiction of the underlying phenomenon (Marti 2008). As our model encourages assessors to appraise student content using the language of assessment, a large bank of capital descriptors and tags (or keywords) emerge that contribute rich aggregated data for each student submission. This feature increases relevant assessment vocabulary and literacy, and consolidates a shared language

for all users, which builds what Sadler (2008) calls a suggestive bank of latent criteria.

Competitions: Supervisors and administrators can create and administer competitions. Those that we instigated acted as an incentive for students to use the system, and as a way for supervisors to increase engagement with the model. However, we were cautious of uptake findings from previous research using this particular CMS in schools located in low socio-economic areas (Bruns and Humphries 2007), which report competitions with low participation rates and several copyright infringements.

User Moderation: The common user moderation practices of online social media spaces satisfy the flexibility and accountability requirements of our model. If three registered users report a piece of content, comment or tag as inappropriate the owner is sent an automated email message that informs them it has been removed from the live system. We investigated all user moderation practices during phase three of our research because we believed that our analysis of these exchanges would inform teachers moderation of students' work and vice versa. There is no published research making this connection at the time of writing, and although it is clear that user and teacher moderation practices perform distinct functions, this relationship requires further investigation in the context of online assessment systems.

Going Public: It was crucial for students and educators to consider the ramifications of making their work public by reviewing the relevant standards, license type and description. In light of the increased use and potential dangers of social networking in public online spaces we made the design decision to restrict the public/private module of our CMS. Students' profiles are always private and they must negotiate with supervisors in order to make their individual pieces of work available for public viewing**.** The public view function acts as the front page to the online model, rotating a showcase of students' work that has been moderated, assessed and deemed suitable for general consumption. All comments attached to public content are currently hidden from public view.

The public face of this assessment model displays symbolic digital artefacts that FLC students and staff have successfully translated into institutional forms of capital. This procedure is negotiated between students and staff in line with the principles of authentic assessment for learning (Black et al. 2004; Klenowski 2002; Marshall and Drummond 2006).

Procedure for Going Public:

1. Student or staff request that a supervisor converts a piece of their content to public view (content must have an educational description, at least one tag, one rating and one capital descriptor from peer, self and expert)
2. After reviewing the content, description, peer, self and expert assessments, the supervisor responds with one of two options (1. inappropriate for public - must revise and resubmit or 2. appropriate for public viewing)
3. If inappropriate - supervisor must provide educational and/or copyright reasons and possible amendments
4. If appropriate – supervisor confirms the request and converts the content to public view

The Cycle of Assessment Exchanges: Another key feature is the cyclical design. This aspect of the model responded to research findings reported in relation to students' use of school-based social networks. Without a mandatory requirement Tan (2009) found that social networking was not something students choose to do within a school context, as they preferred to use the social media spaces that most schools block with network filters. This student choice to not participate in extra-curricula activity, reminds us of Becker's (1999) findings that depicted the way medical students learned to disregard any aspect of their course that was not formally assessed. Building on this knowledge our research team created a model that supports and informs each student's *personal learning profile*, which itself is a mandatory educational requirement. Whilst many students engage with the social networking and exchange features of the model outside of school hours, we do not assume that all users will be willing participants. To document developmental progress we aligned our model with this mandatory review procedure to ensure that every student works through the process of assessment as exchange at least once every six months.

Discussion

Cope and Kalantzis (2009) suggest that relevant education for the 21st Century requires rigorous questioning of all modes of meanings. This design experiment attended to the five question areas of: representational, social, structural, intertextual and ideological. The analysis and discussion of each are now presented.

Representational – The meanings our assessment model represents are located in three user types of students, supervisors and administrator in these flexible learning environments. The respective meanings to which these users' works refer are complex expressions of their expectations - what they think flexible learning centres should accommodate and encompass. For example, a student can use the model to represent their artistic competence, an educator to represent their authentic approach to assessment, and an administrator to document progress for funding and accountability purposes. Each piece of student work submitted has distinctive, yet related meanings that serve purposes for all user types.

Social – The model itself connects these meanings with registered users and the world outside the FLC network via any electronic device with Internet capabilities. The social networking features of the assessment model allow users and their works to inhabit multiple online social spaces created within the supportive framework of the FLC network. Each online space evokes different representational meanings (i.e., the special interest groups; surf, graffiti art or certified courses) and this allows each type of user to understand how a single piece can represent multiple modes, and accrue recurrent value in several social contexts.

Structural – All the meanings associated with students' work are organised within a unitary system designed explicitly for use by all members of the FLC network. The system is built around an individual profile as a document storage point, and groups act as virtual spaces that can be organised to accommodate varying meaning systems: formal, informal, special interest, employment related. In this sense there is a capacity for agency located in every user profile that allows the user to provide, receive and reflect on multiple meanings, and capitalise on them using the model's structure to accrue social, cultural and institutional recognition.

Intertextual – These multimodal works and their assessments fit into the larger world of meaning as students and supervisors interact and draw upon 'other' meaning systems to learn, share and exchange. We assume each and every user is connected with a variety of networks in the world at large, providing resources and tools for them to demonstrate allegiances, knowledge, skills and influences from outside their flexible learning site. The model encourages all users to 'add value' by inviting the larger world of meaning into their flexible learning experiences. The system makes use of the concept of an eportfolio format embedded within a social networking site that allows for social and cultural participation by users who can record and document different life-experiences, using multimedia to exhibit and exchange creative artefacts. The tool extends current FLC assessment practices in providing a platform for users to enhance skills and knowledge of social networking, communication at various levels, of publishing and producing in fields such as music, English and the creative arts. This type of online skills development and interaction helps to develop an enhanced sense of self and confidence for some learners. The artefacts themselves can be assessed for certification and the award of credentials.

Ideological – In answer to the question of whose interests the meanings are skewed to serve, we conclude, all the user types. The model affords students, supervisors and administrators of FLCs opportunities to meet their distinct interests in the sub-field of flexible education. Of course government mandates require the administrators who commissioned the model to provide standard education and employment outcomes too, and these imposed interests are also represented.

The discussion now returns to the four major principles of design experiments (Cobb et al., 2003). First, the research was concerned with *exploring possibilities for novel learning and teaching environments*. The assessment model operates in flexible environments to improve reporting on traditional and non-academic student outcomes, and we have created new ways to document and assess learning based on the theoretical perspective of *assessment as exchange*. A concrete example of exploring such novel possibilities was from the collaborative efforts of FLC staff and students who managed to document and assess the experiential learning processes gained through non accredited 'outdoor education' camping excursions. By

compiling, uploading and sharing simple visual and textual presentations of their camping experiences, students who possessed significant skills in this field received appropriate recognition not often afforded to them through traditional means of assessment. The digital product – an audiovisual slideshow presentation including photographs, annotations and music – documents students' skills and resources related to camping and survival, which were shared through groups within the online model to gather multiple assessments. Methodologically, we designed the model in this way to document this type of experiential teaching and learning outside the classroom, which made students' cultural and social capital more visible, and counterbalanced their negative self-perceptions based on low-level literacy and numeracy skills.

Second, we are *developing contextualised theories of learning and teaching.* Our intervention is underpinned by a combination of two distinct theoretical perspectives: Bourdieu's capitals exchanged in the field of flexible education (Albright and Luke 2007); and sociocultural theories of learning and assessment (Murphy and Hall 2008). Together these perspectives provided the heuristics to conceive the concept of assessment as exchange (Connolly 2011) to describe the model's core feature, which facilitates the exchange of capitals. Through the creation, presentation, sharing and collaborative assessment of digital productions, participants exchange skills, knowledge and resources for credentials with recurrent value. Methodologically, this is the first approach of its kind. E-portfolios and online assessment portals have facilitated the acquisition of economic and social capital through incentives such as cash equivalent credits (Pinkard, Barron and Martin 2008) and a rating system for novel applications of educational incentive, but none have conceptualised and expanded the classification and exchange of cultural, institutional and symbolic forms. We envisage future disengaged students, who manage to sustain their sense of self through this model would eventually learn to internalise their accrued capital values, which would act as another signifier of increased confidence facilitated by a conceptualisaton of assessment as exchange.

Third, we are *constructing cumulative design knowledge* by documenting all the decisions we made in collaboration with our research participants. It was important for us to position this design experiment as a test case in assessment, rather than a

software implementation project. Well aware of the caution teachers and students express towards the addition of ‘new systems’, our research team provided FLC staff with guidance in the concepts, language and practice of assessment, producing a training guide, protocols and workshop series rather than competing with large software developers to implement and service an active online assessment system. The speed of change within the field of social networking and e-portfolios means we are hard pushed to stay current with the latest innovations, let alone incorporate them into our model. We have agreed to make original contributions to the design knowledge in this field by documenting, testing and recommending amendments to existing online education services that will make them suitable for assessment exchanges in other context specific applications.

Fourth, we are *increasing human capacity for innovation* by making the tools and protocols associated with 21st Century skills widely available in flexible learning environments. The Creative Commons licensing system, the availability of open source applications and cloud computing have increased the ways in which students and educators interact. Our design experiment has intentionally promoted these tools to its research subjects, and is now engaged in the process of further consultation to refine the protocols we advocate for online assessment systems. Methodologically, we are increasing the human capacity for innovation by encouraging the students and educators to upload, share and assess multi- modal cultural products that respond to explicit criteria within flexible learning environments. The assessment model’s use of online tools such as ‘tagclouds’ also suggest exciting possibilities to identify emergent criteria, thus transforming holistic assessment and grading into a vehicle for complex learning (Sadler 2008).

Conclusion

This use of the design experiment method has deepened our understanding of how social networking practices can improve the ongoing assessments of the flexible education providers. As it is now possible to draw on the functionality and infrastructure of large data storage providers through cloud applications, our long-term goal for this experiment is to monitor these commercial developments, test them in context specific learning situations and provide recommendations for education providers about their use in online assessment systems that adhere to

students', educators', administrators' and funders' requirements.

Our online assessment tool for disengaged youth enables students to understand and document their own educational development in ways that are not visible in the majority of e-portfolio systems currently available. The model provides teachers, and youth support workers with tools that are adaptable to present and future changes in curriculum, standards, moderation, counselling and careers guidance. The model facilitates customised reports that track student development for funding and accountability purposes in ways that offer greater control and customisation. This research project continues to identify and monitor educational, social, economic and political barriers and opportunities associated with the development of such technologies in flexible learning environments. Proficiency in 21st Century skills is central to success for most young people. These digital literacy skills and associated technological resources (both physical and human) continue to provide benefits and limitations to the developmental progress of disengaged youth in flexible learning environments.

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