Reflections on pedagogy: Reframing practice to foster informal learning with social software

This paper proposes that social software can enable informal learning environments through collective learning networks and the fundamental social interactions embedded in those learning processes. Situated in the adult learning organisational context, the challenge for educators is how to re-frame their pedagogical practices for the new technological developments and facilitate the design of online communication and information exchanges to empower the learners and create an enriched social learning landscape.

The paper presents a pedagogical framework, developed from practice, which provides multi-linear pathways for facilitating informal learning processes and strategies that enable learners to overcome key issues that may inhibit the creation of informal learning environments. Examples from recent experiences will illustrate areas where educators need to be aware of both the inhibitors and their pedagogical strategies.

Anne Bartlett-Bragg
University of Technology, Sydney
Anne.Bartlett-Bragg@uts.edu.au
http://digitaldialogues.blogs.com/learning_technologies/

Faculty of Education,
PO Box 123,
Broadway,
Sydney,
New South Wales, 2007
Australia
Tel: + 61 418 852 581

Introduction

In adult learning contexts, both corporate organisations and higher education institutions, the early implementations of e-Learning products focused on delivery, accessibility, and distribution of content to learners anywhere, anytime. While large investments of resources were spent on the technical infrastructure such as intranets, learner management systems (LMS), and online courses with the expectation of providing improved productivity, delivery and workplace efficiencies.

Yet there is little evidence to suggest that incorporating these technologies into existing learning environments has resulted in significant change in learning processes or outcomes (Zemsky & Massy, 2004). Learners lament the loss of communication and de-personalisation of content (Sanders, 2006) and continue to attend scheduled classroom sessions even when offered alternative delivery methods, such as podcast lectures (Alexander,2006).

In these contexts, the role of the educator has become increasingly focused on dispensing, enforcing, and managing the distribution of learning through overly bureaucratic, inflexible systems that de-personalise and disconnect the learner from not only the context but also other learners within the organisation (Bartlett-Bragg, 2005)

Currently, organisations are turning their attention towards emerging technologies in an attempt to stimulate the capture of tacit knowledge from informal learning situations. Consequently, to reflect and question our underpinning pedagogical principles when creating a learning environment that fosters the development of informal learning is the potential presented by the integration of the emerging social software technologies into our teaching practices, rather than simply replicating or renovating traditional pedagogical strategies.

The aim of this paper will be to present a pedagogical framework, developed from five years of practice and informed by research that provides multi-linear pathways for facilitating informal learning processes using social software. In particular, drawing upon specific examples from recent experiences in the organisational learning context, issues that inhibited learners when attempting to create informal learning environments with social software will be identified and strategies used to address these concerns will be examined.

Informal learning in organisations

Informal learning, as a core notion of adult learning principles, can be viewed as a sub-set of the social learning concepts, where the recognition that learning occurs in a social context through interactions with others and subsequent learning is influenced by observing and modeling the patterns of behaviour (Cornford, 1999).

Marsick and Volpe (1999) propose that informal learning will occur in workplaces where there is a need, motivation, and opportunities for learning and where the control of learning is primarily the responsibility of the learner. It can be depicted in the following situations in the workplace context:

- Where it is not a highly conscious activity

- Where it is haphazard and influenced by chance
- Where it is an inductive process of reflection and action
- Where it is linked to learning of others through social interactions (which may occur in formal learning environments).

Informal learning in the organisational context can be distinguished by the strategies that represent the formal learning processes and the current use of technologies to deliver them. Refer to Table 1 below:

Formal Learning Activity	Use of Technology	Informal learning Activity	Use of Technology
▪ **Classroom sessions:** Structured Time constrained Outcome focused	**LMS:** Enrolments Records attendance Tracks results Records competence Reports compliance	▪ **Networking** ▪ **Communities of Practice** ▪ **Mentoring** ▪ **Coaching** ▪ **Learning from experts or advisors**	Collaborative spaces – typically asynchronous discussion forums, synchronous chat or instant messaging, email
▪ **Online modules:** Self-paced No or little collaboration Structured Outcome focused	**LMS:** Access Delivery Records progress Records completions Records competence Reports compliance	▪ **Searching for solutions to problems**	Internet (Google) Intranet email an expert
		▪ **Information distribution**	Syndication software/RSS Intranet email / listservs
		▪ **Self-analysis or reflection**	Online journals, weblogs

Table 1: Formal versus informal learning technologies

In many instances, informal learning will transpire without structured interventions however, the organisational need driven by objectives to make explicit aspects of tacit knowledge and create measurable outcomes for all learning strategies may in fact create a barrier to the effectiveness of informal learning opportunities.

This paper contends that attempting to integrate informal learning into a structured formal learning technology environment, such as the LMS, will result in constrained learning bounded by the limitations of the software. Further, to foster an informal learning environment the introduction of social software will provide situations where interactions and knowledge sharing can occur and extend beyond the enclosed entity of the classroom, LMS, and the organisation. However, inhibitors may result in ineffective usage by learners, and without reframed pedagogical strategies to address these inhibitors informal learning will be in jeopardy of shifting into the existing formal learning technologies and structures.

Social software in education

Social software refers to the range of applications that augments group interactions and shared spaces for collaboration, social connections, and aggregates information exchanges in a web-based environment. Social software can also be considered as the major component of the current Web 2.0 definitions and at the focal point of e-Learning 2.0, a term attributed to Stephen Downes in 2005 where he characterises the use of

social software applications as "…placing of the control of learning itself into the hands of the learner…"(Downes, 2005, para. 12).

The list of social software applications is extensive and growing rapidly, a brief overview of the more commonly used applications in organisational learning contexts is outlined below:

Collaborative spaces: web-based collaborative publishing spaces such as weblogs, or blogs, have been the core of the increasing popularity of social software and have developed into powerful personal spaces that allow the author to self-publish and organise their information or knowledge. In addition, the interaction with their readers through comments or linking functions, and the ability to subscribe to updates through syndication tools has been seen the weblog technologies as the foundation to further developments in education.

Other web-based shared spaces like wikis include the functionality to communicate, co-edit documents and web pages, share calendars, view multimedia presentations and build collaborative projects. The popularity of these applications has been attributed to the ease of use and flexibility which only requires the user to have internet access and no HTML programming skills. Popular examples of free wikis used in educational settings are Wikispaces (http://www.wikispaces.com) or PBWiki (http://www.pbwiki.com).

RSS – syndication & aggregation - Really Simple Syndication – a method of XML-based programming that allows content to be imported into other web pages. RSS originated in weblog software but is now available across many other sources, like news and journal sites. RSS enables readers to subscribe to webfeeds from sites of their choice, monitor updates, and view them in a single page from a web-based service called an aggregator, eg. Bloglines (http://www.bloglines.com - a free subscriber service). The power of the aggregator for learners comes from the ability to control and manage the flow of information in a centralised manner.

Social bookmarking or tagging with folksonomies - social bookmarking is a web-based application that is similar to a Favourites list in a browser, except that it allows the user to bookmark, manage, publicly publish, comment upon, and create their own tags for each URL they want to share. The objective is to publish your resources for other people with similar interests. The key to the shared resource is the development of a social tagging system – called folksonomies – derived from the term taxonomy, a hierarchical list or categorisation - the folksonomy focuses on a group of people co-operatively organising information into agreed categories. In addition, these tags have RSS feeds which can be collected into the learners' aggregator, becoming a powerful research and resource gathering tool. A prevalent example is Delicious (http://del.icio.us).

Social sharing services – similar to social bookmarking, these are applications that share other services – for example, Flickr (http://www.flickr.com) is a web-based photo sharing service that uses the folksonomy tagging process to collect and share photos publicly or privately across the web. In the educational context, photos can be gathered for projects and the agreed tagging systems allow collective sharing.

Podcasts – digital audio files that are downloaded from the internet onto learners' personal audio playing devices such as iPods, where the content can be listened to at the learners' convenience. Podcasting is emerging as one of the most popular current innovations in social software with major research projects investigating the beneficial effects on learning (Impala, http://www.impala.ac.uk , 2006), reports from educators outlining a diverse range of uses and positive feedback from learners (Alexander, 2006),and edition 10 of the Knowledge Tree – the Australian e-Journal of flexible learning in vocational education – dedicated entirely to podcasting (http://kt.flexiblelearning.net.au/edition-10/ , 2006).

Reports and case studies from individual educators and several institutions incorporating social software, specifically weblog technologies, into their practices can be found dating from early 2001(Farmer & Bartlett-Bragg, 2005). More recently, as social software has evolved in both sophistication and ease of use, the adoptions rates have increased with a growing number of supporters claiming the social software technologies are the most significant development in online learning since the introduction of enterprise level LMS, yielding an opportunity to transform learning and rethink traditional teaching processes (Downes, 2004).

Publishing and participating online with social software creates a complex genre of communication. The social structure of the environment comprising of an infinite variety of people, both readers and writers, supporting the structure of network evolution that develops through an ecology of links and connections. The social networking and the collaborative spaces that are created by the personalising of content and sharing of information has been recognised as the basis for the human or social dimension of this phenomenon currently being observed (Blood, 2002; Bruns & Jacobs, 2006; Miles, 2005).

Although most studies in education have reported relatively positive outcomes in terms of enhanced student results and participation, there have been areas in which no significant difference or negative learning outcomes have been noted. Specifically, these educators have struggled with learner participation, getting learners to engage in the social software environment, and the challenges of renegotiating private reflective tasks into the public internet space (Gibson, 2004; Krause, 2004; MacColl et al 2005).

In these cited cases, the educators have examined the negative issues reported and attributed them to the functionality and selection of social software options. None have considered the results from a pedagogical perspective and critically evaluated their strategies.

Social software re-positions the learning into an unconstrained environment that stretches beyond mere access of content to the social application of information in a constant process of re-organisation into the learners' shared context (Mejias, 2005). In my practice, social software provides opportunities for learners to personalise and manage their development of knowledge, augment potential for a deeper approach to learning through reflective writing processes, and create collaborative spaces for interaction with colleagues and others beyond the formal boundaries of the classroom, thus fostering an environment where informal learning can be expected to emerge.

Inhibitors to informal learning using social software

Many factors can inhibit the ability to learn in both formal and informal learning contexts. Informal learning may be directly influenced by availability of resources (which can include time restrictions, availability of other people, and technology), motivation to learn, and capabilities of the learner (that may include the level of skill or awareness to interpret, analyse, and critically reflect upon situations) (Marsick and Watkins, 2001).

Similarly, the implementations of social software into learning contexts have presented my practice with the following additional inhibitors to informal learning which can be categorised into three areas: 1) organisational inhibitors; 2) individual inhibitors; and 3) pedagogical inhibitors.

1. Organisational inhibitors:

- **Organisational technology infrastructure**
  Educators implementing social software are confronted with the challenges of:
  - determining which applications can be accessed through organisational firewalls where limitations on social sharing sites, generally justified by fear of external security breaches through collaboration and social sharing sites;
  - determining the speed of internet access required – particularly if collaboration is occurring outside of workplaces where network speeds provide a superior user experience to the internet speeds available on personal networks in the home;
  - considering the range of software applications that are constantly changing and new entrants require educators to be frequently reviewing their choices for enhanced or additional functionality that may positively contribute to the learners experience;
  - limitations imposed by organisational IT departments on rich media such as graphics, photos, or videos causing pedagogical strategies to be inhibited to text only functions, potentially limiting the depth of interactions available to the learners.

  All these factors can impact the educators' choices and limit the learners' ability to engage in rich social sharing environments.

- **Organisational culture:**
  The strategic learning culture espoused and / or practiced by the organisation may restrict the implementation of social software and associated informal learning activities. Software applications that have collaborative functionality or rich media disabled can indirectly or directly present to the learner a culture where the sharing of tacit knowledge and experience is not actively valued.

  Additionally, a training culture that is structurally dependent upon competency and achievement of learning outcomes through regulatory requirements or a focus on measurable return on investment will not endorse the integration of social software and informal learning where outcomes are seen as subjective, difficult to formalise, and the development and capture of tacit knowledge hard to measure.

2) Individual inhibitors:

- **Digital literacy:**
  Digital literacy is a term increasingly used to encompass both computer literacy and information literacy, subsequently referring to skills related to the use of computers, and additionally a person's abilities to manage, evaluate, analyse, create and communicate in digital formats.

  As an inhibitor, both educators and learners are expected to understand and manage the software functionality, such as how to access, login protocols, communication processes, and the access and storage of information. Additionally, searching efficiently, and evaluating the authenticity and credibility of information resources has become an expected capability for most learners.

  In my own practice, digital literacy is a major area of concern that has required the most attention to address through pedagogical strategies. Other educators have identified similar experiences where students are reported to be spending more time working with the technology than with the content (Sanders, 2006), and where the need for educators to develop their awareness and teaching practices are being recommended (Blackall, 2005).

- **Learners:**

In addition to the capabilities of the learner, as previously noted (Marsick and Watkins, 2001) inhibitors that have been observed to restrict the learners' ability to participate in collaborative social software environments include:

- The learners' dependency on the educator for direction, which can be related to low levels of digital literacy, pedagogical practices, and organisational culture;
- Anxiety to develop an online identity, sometimes expressed as lack of self-confidence, fear of self-disclosure, invasion of privacy, mistrust of the culture to share tacit knowledge;
- Fear of publicly publishing their thoughts, which can relate to the previous issues, or the learners' confidence in their writing skills to adequately represent their thoughts;
- Learner control – where time management, planning, and structure are noted by the learners as issues difficult to embed into study plans or daily work patterns.

Recent published papers endorse these observations (Mejias, 2006; Wijekumar,2005).

3) Pedagogical inhibitors:

The educators' existing pedagogical practices developed through formal studies or influenced by organisational training structures can inhibit the development of learners towards participation within social software environments and informal learning activities. Baumgarten (2004) outlines three prototypical models for teaching that provided my practice a valuable framework for reviewing and reframing pedagogical strategies to enable informal learning. Refer to Table 2: Modes of Teaching.

Mode 1: Transfer (Directed Teaching)	Mode 2: Tutor (Facilitated Learning)	Mode 3: Coach (Informal Guide)
▪ Programmed instruction	▪ Problem solving	▪ Complex simulations
▪ To teach, to explain	▪ To observe, to help, to demonstrate	▪ To co-operate, to support
▪ Production of correct answers	▪ Selection of methods and its use	▪ Realization of adequate action strategies
▪ To know, to remember	▪ To do, to practice	▪ To cope, to master
▪ Transfer of knowledge	▪ Presentation of pre-determined problems	▪ Action in real situations (complex and social) (Baumgarten, 2004)

Table 2: Modes of Teaching

Educators intending to foster informal learning environments through the application of social software need to operate predominantly in a Mode 3 mindset, remaining cognisant of the need to provide some structural guidance in early phases of implementation with the Mode 2 parameters.
Educators who continue to teach with social software entirely from a Mode 1 or even Mode 2 approach will cause informal learning to become structured and formalised, thus missing the opportunities presented by the guided strategies embedded in Mode 3.

Pedagogical model to foster / facilitate informal learning using social software

The pedagogical framework developed by the author has been based on five years of practice and extensive research culminating in a PhD study. Informed by research into the learners' experience of using weblog and associated self-publishing technologies, the model has evolved to encompass strategies to not only enable the learners' development, but also specifically to address inhibitors that can create barriers to the learning processes.

Theoretical perspectives that have underpinned the development of the pedagogical framework include the following: Bandura's (1977) Social Learning Theory; Vygotsky's (1978) theories on the development of knowledge construction through the discursive nature of weblogs, expanded more recently by Wells (2000) to incorporate learning that is socially constructed through language and collaboration; Lave and Wenger's (1990) Situated Learning theory that conceptualises learning not as a separate and independent activity but as participation in a community of practice; Boud's (2001) and Schön's (1987) models of reflective writing processes; Brookfield's (1987) critical thinking process; Marton & Booth's (1997) anatomy of awareness including surface and deep approaches to learning, with critical differences in approaches identifying aspects that inform pedagogical practice; and Barabasi's (2002) models of internet patterns of behaviour and the formation of network models that can be applied to describe patterns observed in weblog networks.

The objective of the pedagogical framework is to facilitate the development of independent learners allowing them to become proficient in informal learning contexts using social software environments. The framework can be viewed as an enabler where multi-linear pathways draw the focus being not on the software or technology selected by the educator to create the learning environment, but on the social aspects of the learning process and strategies to support the learning experience. The progression through the pathways can occur at differing levels and allows for the learner to self-manage the processes.

Although presented as a sequential process, learners may be influenced by inhibitors at any stage, on any pathway, requiring the attention of pedagogical strategies from another pathway to be fore-grounded while the inhibitor can be addressed, and re-orienting the learner to the focus of the learning process. An outline of the framework and typical inhibitors will be described with examples of comments from learners to illustrate typical responses throughout the stages. Figure 1 diagrammatically represents the pathways and overviews the structure.

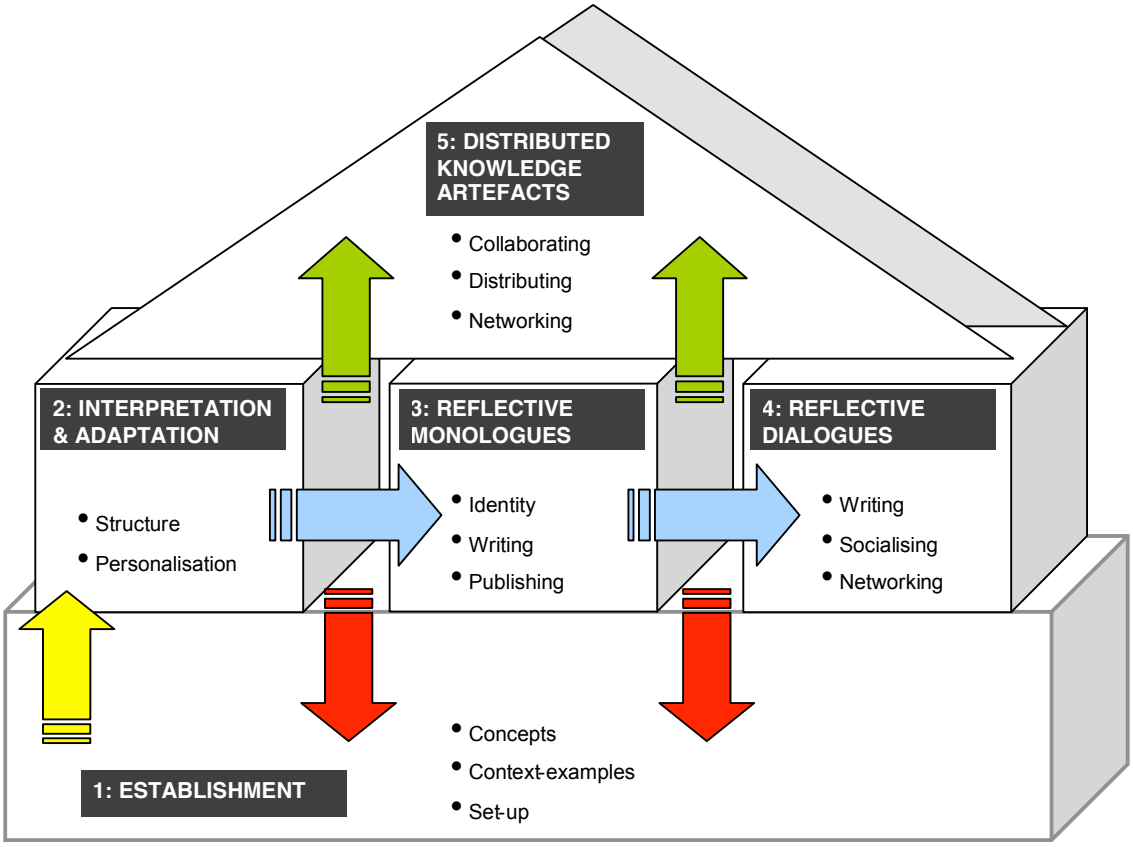

Figure 1: 5 Pathways to develop learning networks – a pedagogical framework

Comments from learners have been extracted from current practice and are displayed in italics to illustrate the experiences of the learners in their own words.

Pathway #1: Establishment

The foundation of the enabling process – this pathway is continuously present at all stages of the framework.

Activities completed along this pathway require the introduction and framing of the learning environment's technological and conceptual structure with examples or models for the learners to observe. In conjunction with the development of the conceptual structure, the introduction and set-up of the software applications are established.

Guidance and support from the educator is essential throughout this pathway, as any technological challenge or miscomprehension of concepts can dominate the learners' attention and become an impassable barrier unless addressed.

1) Organisational technology infrastructure:
The selection of social software that can be accessed effectively within the parameters of the organisational infrastructure is exclusive to this pathway. Careful attention and testing prior to introducing learners to the technology environment is of the utmost importance.

2) Individual / Learner inhibitors:
The digital literacy levels of the learner are dominant throughout this pathway. In addition, the learner's ability to generalize and conceptualise the use of the software can have profound effects on how they manage any challenges with the technology.
Learners express their challenges with demands for the educator's immediate attention: "Show me", "tell me", "do it", or fix it for me" are common exclamations during this pathway.
Frustration and insecurity relating to their abilities to complete processes require the educator to have all activities broken down into small achievable steps with examples to illustrate intended outcomes.

"The wiki is still a struggle for me at times, it never does what I want!!! I need to complete an online tutorial of how to use the wiki. At times I can be technologically challenged"

"Well I'm here after much stress and anxiety. I am beginning to think I really am a technophobe and if not, then I am definitely a little slower than most to catch on to using all the applications available to us."

3) Pedagogical Inhibitors:
Reponses to learners at this early stage require the educator to consider and model patterns of behaviour that will influence future strategies and interventions. Typically, the patience and guidance of the educator will greatly benefit the learners' ability to cope with further technology issues that may arise.

Educators need to move away from Baumgarten's (2004) Mode 1 helper / fixer styles of directed teaching towards Mode 2 questioning / guiding styles of facilitation or the longer term outcome will be learners retaining this pathway as a dominant teacher dependent position requiring high levels of attention from the educator.

Pathway #2: Interpretation & Adaptation

The core concept of this pathway is to encourage learners to start using the software and personalising the basic structure.

At this stage activities that demonstrate more software functionality and allow learners' to develop personal information management are introduced – paying attention to the potential for learners to revert to pathway #1 if overwhelmed by new concepts and new technologies too quickly.

Small writing activities that relate directly to topics being studied and respond to focus questions allow for practice and familiarisation with the basic publishing processes.

2) Individual / Learner inhibitors:
Digital literacy directly relating to information management can be a conceptual challenge for learners during the personalising and set-up of their space. Levels of anxiety and frustration can recur and can be directed towards the educator with possible rejection and disengagement with the learning activities.

3) Pedagogical inhibitors:
The conceptual frameworks established during Pathway #1 are the essential foundations which require the educator to provide guidance through modeling and examples. Providing answers and solutions in a Mode 1 framework does not make available to the learner the additional learning awareness skills that will enable progression through the pathways. Mode 2 style facilitation may be necessary to assist the learner to deal with the frustration and anxiety, while remaining aware that Mode 3 strategies are the objective.

"I'm struggling with my inability to compartmentalise the learning elemnts of this course. I'm getting lots of 'stuff' but it's not sinking in anywhere..at least not in the manner I would like to recieve it. Information Overload!. Where to start?. .. in other words FOCUS on a tested methodology instead of trying to create one.... but add your own flavour!. Draw out a structure then drill down and flesh out.
The Blog, the profile, the discussion board sometimes appear to be distractions but I'll persist hoping that what bubbles to the surface will be useful …."

Pathway #3: Reflective Monologues

The core concept of this pathway is to further encourage the development of a personal identity.

Activities at this stage include further personalising of the software applications, creating profiles, reflective writing activities generally based on guiding questions from topics being studied, and the issues of publishing publicly.

2) Individual / Learner inhibitors:
Although the learners' levels of digital literacy are still present at this stage, it has become less of a concern. The dominant issues arising are focused on creating an online identity and writing publicly.

3) Pedagogical Inhibitors:
At this stage, it is imperative the educator moves into a Mode 3 approach that supports and guides the learner, without prescribing formulas about how activities should be completed. Any Mode 1 or Mode 2 responses will undermine the learners' ability to develop their own identity, self-confidence in writing, and personal learning management strategies.

"I know that my posts/reflections will be all over the place, much like what's going on in my head. I am quite a reflective learner who generally prefers to sit back take it all in, process and analyse at my own pace and then apply. I do this all in my head without the urge to put it into print. So I find myself in unchartered waters… pushing myself to self reflect on 'virtual paper'."

Pathway #4: Reflective Dialogues

The core concept of this pathway is to further develop public writing skills and to encourage socialisation and networking.

By this stage learners' have developed a level of comfort with the writing, managing and publishing activities and the focus can now facilitate the interaction with others. Activities that promote the reading and commenting of contributions, either within the cohort or beyond the constraints of the course, encourage the development of network participation.

1) Organisational culture:
The organisation's approach to social software, collaboration, and interaction between internal learners and potentially external networks can inhibit the learners' willingness to participate and share their thoughts and ideas publicly.

2) Individual / Learner inhibitors:
Learners may exhibit a level of comfortable in writing self-reflective tasks, perhaps in restricted areas of the selected software, however, when encouraged to collaborate with others, their level of self-confidence – particularly in relation to their writing capabilities - becomes a major concern and will influence how actively they seek to engage in the processes.

3) Pedagogical inhibitors:
Ongoing Mode 3 strategies such as participation in the development of networks provides a model for the learners with the effect of supporting the processes, but not prescribing the method that could be interpreted as a Mode 2 or Mode 1 strategy.

"I still feel a little reserved about adding comments or updating the wiki incase the others do not like what I say and or what I say was pointless or of little value to the project. I have to learn to get my head around this and not care what others will think, to an extent."

Pathway #5: Distributed Knowledge Artefacts

The core concept of this pathway is to facilitate active participation in social networking and contributions are distributed with the intention to engage in interaction with others.

The learners' require limited activity direction at this stage, as they further collaborate and contribute within their networks. The writing activities can guide the learners to arrive

at a collective reflection attitude which will often result in the learners becoming models for practice with other cohorts either within the organisation or externally within broader networks.

1) Organisational culture:
The continuation and support for ongoing use of social software and collaborative networks established during a learning environment directly influence how the learners perceive their contributions to be of value to the organisation.

2) Individual / Learner inhibitors:
Digital literacy and other issues previously restricting participation have generally been addressed and are no longer dominating the learning processes. As the learners typically manage their networks with a degree of confidence, there can be a lack of engagement and commitment if they are aware that the processes will not extend beyond the timeframes of a course or qualification.

3) Pedagogical inhibitors:
Influenced by the organisational culture, the educator may also move toward final activities within the learning environment as a completion of their role and instill a closed approach on behalf of the learners to their ongoing activities by reverting to a Mode 1 style that may link to achievement of objectives or learning outcomes. Finding an attitude that fosters continuing guidance, yet allows the learners to remain independent is both challenging and rewarding.

"While I am really looking forward to finishing the diploma, it is going to be sad because it is unlikely that we will all get together like this again, unless there is another course to attend at a later date."

Conclusion

This paper has intended to provoke adult learning educators to re-frame their pedagogical strategies to allow the creation of learning environments that facilitate informal learning through the use of social software.

The framework outlined with multi-linear pathways provides opportunities for educators to enable learners to develop from a model of dependency constrained by formal learning practices to independent learners within collective learning networks and personalised, self-managed attitudes to learning. However, the barriers identified, and supported by examples from practice, require educators to be aware of the inhibitors to the informal learning spaces and prepare strategies to enable the learning processes.

If we accept the premise that social software can enable informal learning environments through collective learning networks and the fundamental social interactions embedded in those learning processes, then the challenge for adult learning educators will be how to re-frame their pedagogical practices for the new technological developments and facilitate the design of online communication and information exchanges to empower the learners and create an enriched social learning landscape.

Without re-framing our practice and paying attention to the key inhibitors, integration of social software into existing organisational structures, as with the early implementations of other learning technologies, will be likely not to sustain the performance promises.

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