Open Praxis, vol. 7 issue 1, January–March 2015, pp. 7–23 (ISSN 2304-070X)

OPEN PRAXIS
INTERNATIONAL COUNCIL FOR OPEN AND DISTANCE EDUCATION

Social Interaction in Self-paced Distance Education

Terry Anderson, Lorne Upton, Jon Dron & Judi Malone
Athabasca University (Canada)
terrya@athabascau.ca, lorneupton@athabascau.ca, jond@athabascau.ca & judim@athabascau.ca

Bruno Poelhuber
Université de Montréal (Canada)
bruno.poellhuber@umontreal.ca

Abstract

In this paper we present a case study of a self-paced university course that was originally designed to support independent, self-paced study at distance. We developed a social media intervention, in design-based research terms, that allows these independent students to contribute archived content to enhance the course, to engage in discussions with other students and to share as little or as much personal information with each other as they wished. We describe the learning design for the intervention and present survey data of student and tutor perception of value and content analysis of the archived contributions. The results indicate that the intervention was positively received by tutors and by the majority (but not all) students and that the archive created by the students' contributions was adding value to the course. We conclude that the intervention was a modest, yet manageable example of a learning enhancement to a traditional cognitive-behavioral, course that has positive impact and potential with little negative impact on workload.

Keywords: Social Networks; blogs; self-paced study; online education; web 2.0; enhanced learning

Conceptual Framework

One of the greatest benefits of distance education and especially in its latest incarnation as online learning, has been the increase in access afforded to both students and teacher. The capacity to teach and to learn "anywhere/anytime" and yet still have the option of engaging in a variety of social interactions is the most powerful affordance of the educational net. Notwithstanding the advantages of being able to shift time and space, most online learning is still confined to the commencement and completion dates dictated by educational institutions. Not only does this limit learner capacity to start a course of studies to a few dates in the year, but, as importantly, dictates a speed at which the course of study is offered. Thus typically a cohort of learners work together (even though they may be in different geographic locations) and regularly interact with their fellow students and the teacher using asynchronous and/or synchronous communications technologies. This moving ensemble supports 2nd generation social constructivist pedagogy (Anderson & Dron, 2011) and quite easily supports collaborative and other social learning activities. However, any imposed pace is too fast for some learners and too slow for others. Thus, the search for a mode of online education that allows for individual learners to control not only the geographic space, but also the commencement date, the nature of their personal relationships and the pace of their educational study.

The first forms of distance education were delivered by print packages and used postal correspondence to support interaction between learner and teacher. For technological reasons, there was no possibility of and thus no learning design that could encourage student-student interaction. This led to programming based on the development and delivery of high quality content (in multiple formats including text, video and later computer based training (CBT) and a pedagogy

Reception date: 30 September 2014 • Acceptance date: 16 November 2014
DOI: http://dx.doi.org/10.5944/openpraxis.7.1.164

which we defined as first generation, cognitive/behavioural distance education pedagogy (Anderson & Dron, 2011). This mode of distance education soon became identified as “independent” learning and it was noted that there was no logical reason why students should commence at any particular time of the year, nor that they should proceed at a pace dictated by more than their individual time availability and capacity for learning. With the development of low cost interactive technologies including asynchronous computer conferencing and synchronous audio teleconferencing, distance education entered a new era defined by Garrison and Shale (1990) as “education at a distance” not “distance education.” By that they meant that distance education need no longer be associated exclusively with independent study. New second generation social constructivist pedagogy became possible and was seen as desirable by many learners and teachers who were comfortable with this educational model, which also dominated classroom delivery. These two models of distance education have co-existed for many years and both are now supported by a variety of web technologies. With the development of connectivist pedagogy, it became possible to envision a third model of distance education in which students retained freedom of time, space and pace, yet were also able to build learning networks and work cooperatively, not collaboratively -see Paulsen (2008), with other students.

Recent development of user generated content technologies drastically increase the potential for more user control and ownership of their personal learning networks (PLEs) and subsequently also increases the demand for more responsive forms of higher education. Buchem, Attwell and Torres (2011) note five dimensions of learner control while engaged in formal learning which go beyond the control of time and place to control of objective setting, tools, rules, tasks and social space. The intervention we explore in this paper is a small step that expands learners’ control of the social space by allowing the learner to control with whom they communicate and to initiate discussions and potential collaborations. Thus the intervention not only increases learners agency but potentially their engagement that “emphasizes the shift of control and ownership from the educator or the designer to the learner” (Buchem, Tur Ferrer & Holterhof, 2014, p. 15). We have expanded this discussion to include pedagogical and technical constraints and affordances of ten different components of freedom in other work (Dron & Anderson, 2014b).

Assuming that we are attempting to move self-study to a more social context to benefit from new pedagogical developments and the many benefits associated with interaction educational context -for a review of these see (Anderson & Kuskis, 2007)-, it is useful to both plan, anticipate and support the most effective type(s) of social interaction. We have been writing recently (Dron & Anderson, 2014a, 2014b) about three distinct modes of social aggregation that can be used to educational advantage. The first is the familiar group, with structured and defined membership that is used in 2nd generation distance (social constructive) and classroom education today. The second is the network consisting of both weak and strong ties amongst learners. Finally, the “set” is an aggregation of those who have something in common, and use that impersonal commonality to collectively serve one another’s educational and social needs. In this case study, we have built an online social set of tools that potentially supports all of these social aggregations, including independent learners. We use this case to examine actual use in a real and emergent distance educational context.

Research Questions

The challenges and opportunities enabled by our social toolset led to the following research questions:

- Would students and teachers engaged in self-paced programming designed with an independent study, cognitive behavioral pedagogy, appreciate and benefit from a connectivist social learning opportunity?
- What would be the impact on teacher and student workload?
- What are the perceptions of value of these interactive activities?
- How can one best characterize or model the social interaction and form of social organization that arises in this self-paced context?

Context of the Case

This study takes place in Athabasca University, a public Canadian university that offers a wide range of undergraduate degree programs that is organized using continuous enrollment and self-paced study. Students are allowed up to six months to complete each course in which they enroll, which may (at a cost to the student) be extended by up to a further six months. The courses are designed by a team of academic experts and learning designers, and assessment and student-teacher interaction is supported largely by part time academic tutors. The case presented here is a senior level undergraduate psychology course with approximately 250 students enrolled per year. The course content was provided through textbooks, a course manual and assignment drop box delivered online through a Moodle Learning Management System (LMS). In order to both encourage and assess more cooperative engagement, a second social networking toolset was integrated into course. This system, which we christened "The Landing," is based on the open source Elgg framework and provides a host of social tools including blogs, wikis, photo albums, polls, microblogs, etc. The site was developed in-house and access is available to all students, staff and faculty (including alumni) at the University -see (Dron & Anderson, 2014a) for a more detailed description-. Within the Landing community a closed group was created and all students in the psychology course (both current and alumni) were encouraged to join that group.

A learning activity was designed by the course team that allowed students to earn 5% of their final mark by making a contribution to the course through linking to a resource (a research article, website, or learning resource) that they found on the internet or to initiate or respond to a blog conversation with other students and relevant to the course study. A rubric was created and distributed to students that assessed the value and originality of the contribution and the appropriateness of the language and organization to a senior level undergraduate course.

Of particular interest in this case was the decision by the course tutors not to interact in the social networking group, though they actively assessed and sent feedback to individual students on their contributions. This meant decidedly less "teaching presence" (Anderson, Rourke, Archer & Garrison, 2001) than stressed in more constructivist learning contexts and thus is a unique context in which to explore new models of learning. Obviously the decision not to be active participants also reduced the fear of tutors of increased workload obligations related to this intervention. This also led us to inquire of students if they either appreciated or resented the absence of active presence of course tutors in the group.

The course group creates a space where students recommend contributions of other students that they find of value and to search through an archive based on user-generated tags or a full text search (figure 1). Students were also encouraged (though not assessed) to use non-group features of the Landing environment including populating their personal profile, contributing to their personal blogs, photo albums or microblogs. The system allows the students to expose any content they contribute to the psychology group members only, or to all members of the University community or to the open Internet including search engines. It was hoped that some students would find value

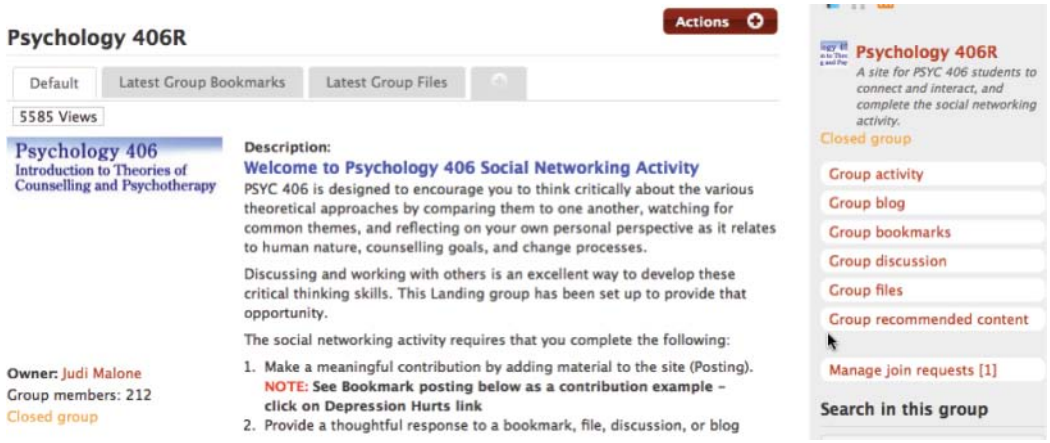

Figure 1: Screen Shot of the Course Group

in the wider social networking context provided by the Landing to develop their web presence and engage in the kind of serendipitous interaction that can and often does occur while engaged in campus-based university study.

Method

The case study employed a pragmatic, mixed method and design-based research methodology. We used a researcher-designed web-based questionnaire to query the current and recent graduates of the course. We also used content analysis of the student contributions, analyzed the course structure and interviewed the faculty and tutors involved in design and implementation of the course and the intervention. The qualitative interview transcripts and content submitted to the group were analyzed using a constant comparative methodology (Dye, Schatz, Rosenberg & Coleman, 2000).

Results

Survey results

We designed a short, web-based questionnaire and an invitation to complete the questionnaire was sent in March 2014 to the 279 students who had enrolled in the course between October 2012 and September 2013. Most of these students had either completed the course, were in progress or dropped out at the time the questionnaire invitation was mailed. A total of 39 (14%) of students completed the questionnaire. As is common in many upper level courses at this University, 38% of the students were program students expecting to graduate from this university. While 61% of the students were visiting students that were enrolled in other university programs and using the course credit earned towards a degree at another university. This detail of the case may have a significant influence in that many of the visiting students may have less desire for social interaction with other students than program students since they have access to student community at their “home” institution. Also, not unusual for this university and subject, 79% of the respondents were female.

Students were required to post at least one text discussion or comment and one resource (file or bookmark). 21% of the students did only this, thus meeting minimal expectations. Interesting was that 56% of the students reported contributing 2–4 resources and 29% reported contributing more than 4 comments.

The participation rate was “bursty” with students reporting a varied number of visits from zero to six times or more (table 1).

Table 1: Number of student contributions

How often did you check out resources or links contributed by current course participants (likely because you received an email notification?)		
Answer	**Count**	**Percentage**
Never (A1)	3	7.68%
1–2 times (A2)	11	28.28%
3–5 times (A3)	13	33.33%
6 times or more (A4)	11	28.28%

A slightly lower number reported searching through the archive (table 2), though a significant percentage of the respondents reported visiting the archive more than 5 times.

Table 2: Use of the Student generated archive of comments and resources

How often have you searched through the older resources for interesting files, blogs or bookmarks?		
Answer	**Count**	**Percentage**
Never (A1)	10	25.64%
1–2 times (A2)	13	33.33%
3–5 times (A3)	9	23.08%
6 times or more (A4)	6	15.38%

Over half (57%) had explored the Landing features beyond those accessible in class group but most of these had not participated in a significant way in the larger university community on the system.

Respondents were asked to assess the value of the intervention along seven dimensions, using a 5-point semantic differential scale. The scale was converted to numeric ratings where 1 indicates no value and 5 very useful. Table 3 shows the perceived value by all students. In addition we differentiated the program from the visiting students and found a significant difference in the mean rating in combined valuations (T=.015, DF). The program students valued the contributions of others more than visiting students in all 6 items, and there was significant differences in 3 items.

Table 3: Perceived value of the components of the social network intervention.

Value of the contributions by others for:	**Avg.1–5**	**Program Students**	**Visiting Students**	**TTest**
Enriching the course content	3.6	4.07	3.36	.059
Finding resources of use outside the course	3.4	4.0	3.14	.036*
Reinforcing content from the text	3.2	3.64	3.04	.099
Helping me connect to other students	3.1	3.28	3.04	.617
Helping me write term papers for this course	2.4	3.07	1.64	.012*
Helping me study for exams	2.2	2.9	1.7	.009**

* sig. at <.05; sig ** <.01

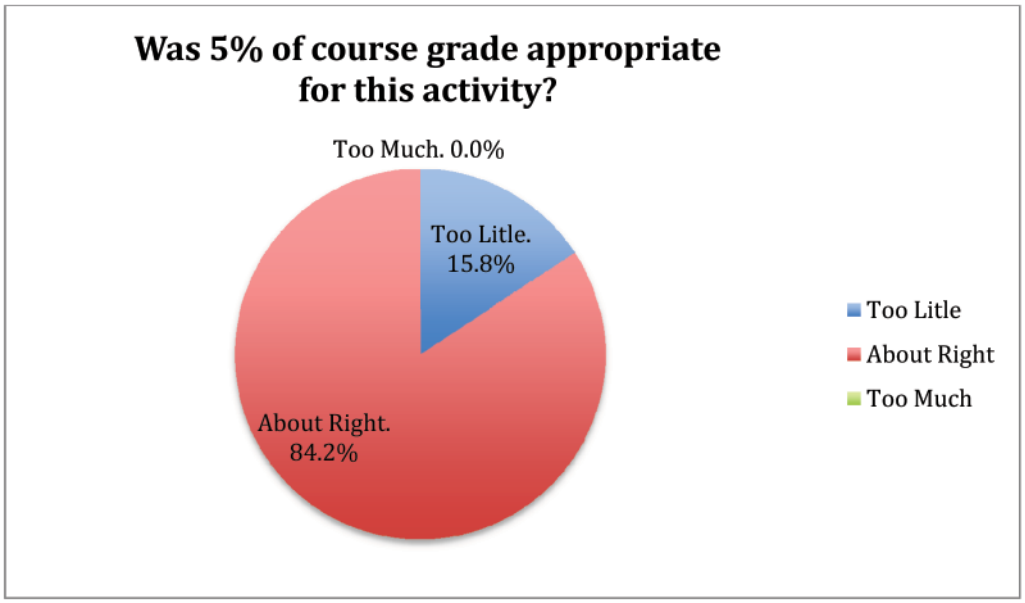

Figure 2: Students perception of amount of grade for activity

The students were asked about the appropriateness of the amount of their final grade (5 percent) allocated to this social networking task. The large majority (84%) thought the mark was about right, 16% thought it was too little but none indicated that five percent was too much (figure 2). Student open-ended comments on this question were inclined to support more emphasis on the activity such as one who remarked "*Increasing the value of using the activity would encourage students to explore it more and therefore see how valuable it really is."* Or another who commented: "*It seemed like more of an annoyance for so little percentage. If it was worth more (say 10 or 15%) then I think I would've taken it more seriously and put more thought into it."*

We also asked if the activity had led to any other interactions with students. Slightly more than half of the respondents reported not having further interactions. However a significant minority of the students noted that the interactions in the form of reading or creating comments was both useful and enjoyable, as illustrated by a student who remarked

> *"I felt I was not alone as a mother-student wanting to move towards a career. . . I was excited and inspired that I was ahead of the game in many aspects and perfect towards my goals. I felt I had similar challenges about family involvement and direction."*

However, others found that the activity to be superficial as shown by a student who commented:

> *"I found this social networking activity not to serve its purpose. . .mandating interaction in such a limited way seemed to result in students making the minimum possible contribution to discussion. . .it was about getting the assignment done rather than engaging in an ongoing or very helpful way with the course content."*

Next, the questionnaire invited students to comment on the notable absence of the tutor (less teaching presence) and if this was a positive or negative feature of the activity. Of the 30 responses, 12 expressed a desire for more presence from the tutors citing need for constructive feedback and a desire to make a more personal connection to the tutor through engagement with their contributions. However a slightly larger number of comments (16) expressed a desire to not have more presence from the tutors, arguing that the posters and their contributions were more free with less fear of judgment or public tutor assessment. One student also noted that:

"I like that tutors were not active in the group site, as it gave students the opportunity to lead the discussions while not subconsciously looking for reinforcement, of approval, from the tutors. It is also nice to have fellow students explain concepts, as this is a valuable part of the learning process and keeps students engaged and interactive."

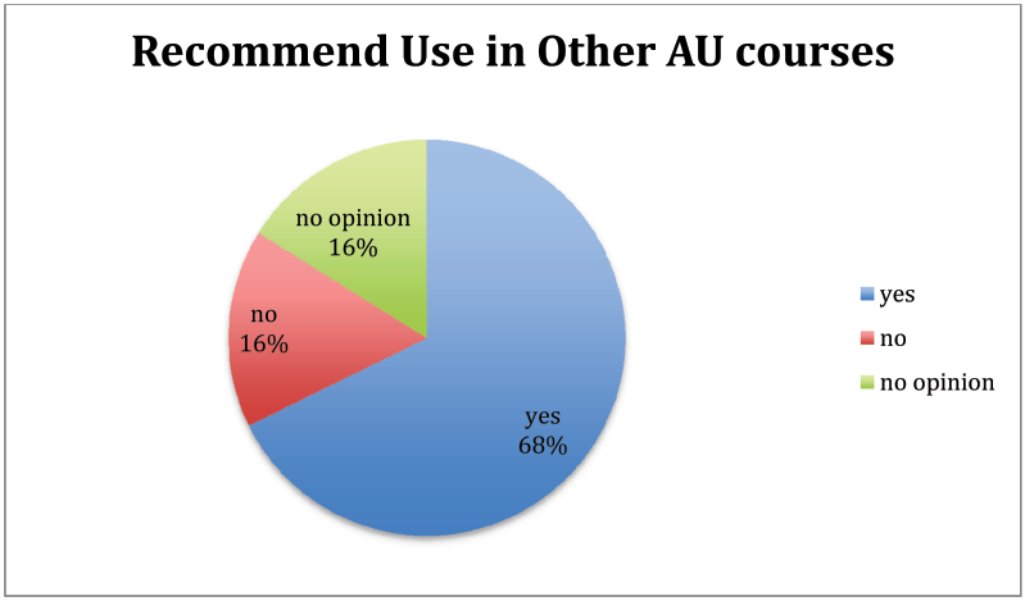

Figure 3: Recommended use in other university courses

The final survey item asked students if they thought this type of activity and the Elgg-based social system should be used in other Athabasca courses (figure 3). Five students (19%) would not recommend this noting the challenges of navigating a new interface, challenges of information overload and concerns about privacy, time requirements and the persistence of comments beyond the course. Another 5 did not have opinions. However, the majority of students were positive with 21 of 31 (69%) students indicating support for increased use. A typical comment from those supporting more use was:

"Using the Landing for online courses is very helpful and I'd say it is almost necessary. Studying online without the benefit of classrooms and interactions makes it more difficult. Having the Landing allows connections."

Student Contributions—Book Marks

Many of the students chose to create a bookmark that linked to a site or a resource on the Internet that they felt enhanced the course. During the one-year period ending in February 2014 there were 79 separate bookmarks posted. Slightly more than half (44) of the bookmarks elicited comments from other students and 20% of the bookmarks received 2 or more comments (ranging from 0–5 comments/post with an average of 1.1 comments/bookmark). A number of students had previously noted the value they place on other students comment on their contributions.

The contents of the bookmark annotations and related comments were analyzed using the Leximancer concept mapping tool (https://www.leximancer.com) to produce the concept map shown in Figure 4. Concept maps, which combine both qualitative and quantitative data in graphical presentation have been shown to be an effective way to summarize and identify relationships between emergent variables in complex data sets (Burke, O'Campo, Peak, Gielen, McDonnell & Trochim, 2005).

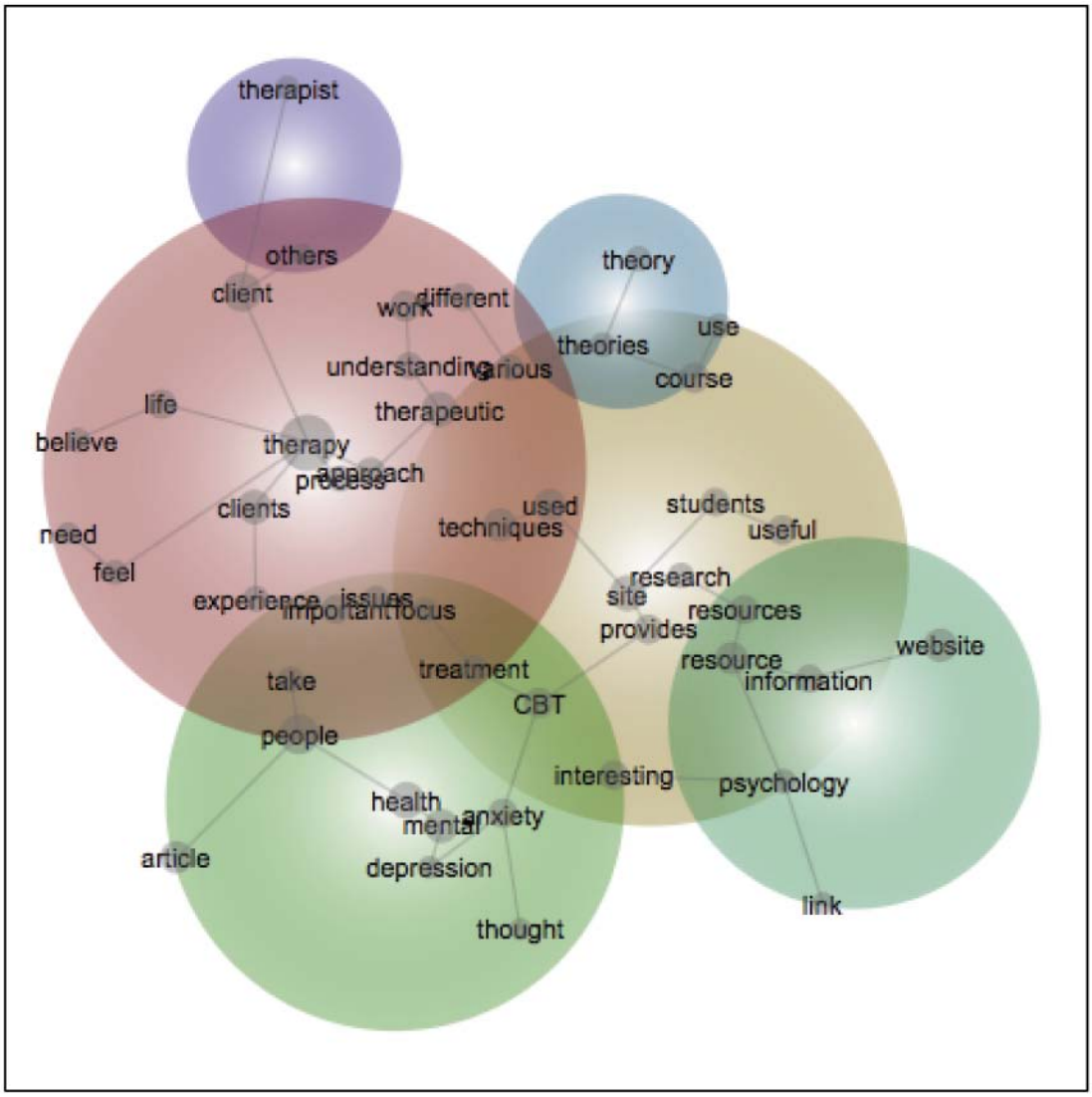

Figure 4: Concept Map of Bookmarked Annotation and Comments

These concept maps demonstrate that that the main ideas discussed were relevant to the course—therapy, theory, research, information and health.

We also coded the bookmarks using open coding to extract major themes. As expected with a contributed bookmark, the most common theme that emerged from the student annotation of the bookmarks related to their relevance to the course content and learning objectives. Comments such as "*This article relates to our readings on Ethical Issues*" or "*This video is useful in understand the topics of unit two*" or "*These podcasts discuss several of the theories we learn about in this course*." Many of the annotations will be useful for further revision of the course as indicated by a student who before adding their own recommendation noted that "*many of the theoretical resources we have available in this class require supplementation with very practical, situation-specific resources*."

The second most common theme was of the students making a critical comment on the bookmark resource which we defined as one supported by facts/references or experiences, rather than a simple judgment. For example a student brings in their own relationship to the resource "*It reminds me that, as I study to become a counsellor that my transparency and vulnerability is something*

that needs to be challenged, as well. In order to build quality relationships, with friends, family, clients, my vulnerability is key to their success and my fulfillment." Or "*This is possibly the most apt description of depression I've ever read, and in blog/cartoon format. For counsellors and/or clinicians who would like a more subjective and phenomenological description of what depression feels like for clients*."

Finally the third most common theme extracted from the bookmark annotations related to advice-giving from one student to another. This advice had one of two focuses—how the resource bookmarked could be used as a learning resource in the context of the course and secondly how the resource could be used in a professional context that the student was familiar. Thus, it demonstrates the important application of learning to both the course, but equally important to professional lives for which these students are currently engaged or preparing.

Student Contributions—Discussions

In addition to posting bookmarks, we analyzed student discussion and blog posts to assess student participation and interaction. Analysis of student posts and comments indicated that students used the discussion and blog features in much the same way without making a clear distinction between the two media. For this reason, we have combined both the discussion and blog post data. During the one-year period under study, students created 49 posts that generated 107 comments. The posts ranged from 69–1240 words with an average of 400 words per post. The posted comments ranged from 7 to 679 words for an average of 442 words per post. 62% of the posts received at least one comment and 54% receiving two or more comments. The total number of comments per post ranged from 0–17 with an average of 2.7 comments per post.

The contents of the discussion and blog posts were also analyzed using the Leximancer concept mapping tool. In the concept map shown in figure 5, we find the central themes centering on key terms such as therapy, therapist, clients, counselor, and work.

Emerging from the concept map of the discussion and blog data (figure 5) is an indication that students discussed themes relevant to the course, but that the focus of discussion tended to gravitate toward work- or career- related topics. This visual representation of the data is consistent with the pattern of themes emerging from qualitative coding.

Both discussion and blog posts were coded for major themes. Codes were further organized into two emergent theoretical constructs or categories: immediate and long range learning goals and concerns. Immediate goals and concerns were those that focused primarily on the discussion and analysis of course content, including specific questions related to understanding course concepts or concerns related to course outcomes. Long range learning goals and concerns included topics beyond the analysis of course material and assignments, such as practice and professional competency related themes.

Themes centering on immediate learning goals and concerns ranged from discussion of assigned readings and important concepts and ideas. Students often directly referenced the text, providing comments to support critical reflections, often testing assumptions presented by theorists:

> *"While Corey focuses on just the personal characteristics of good counsellors, Bernes takes a broader approach by describing 5 conditions that are critical to a counsellor's success: history, personal characteristics, cognitive ability, rigorous quality academic program and major field exposure."*

This type of content-specific reference was encountered frequently in the discussion. Students frequently made connections between schools of thought and key theoretical concepts presented in the course readings. Moreover, student expressed understanding of theoretical concepts and their relevance to specific work related contexts. In addition to drawing inferences and making

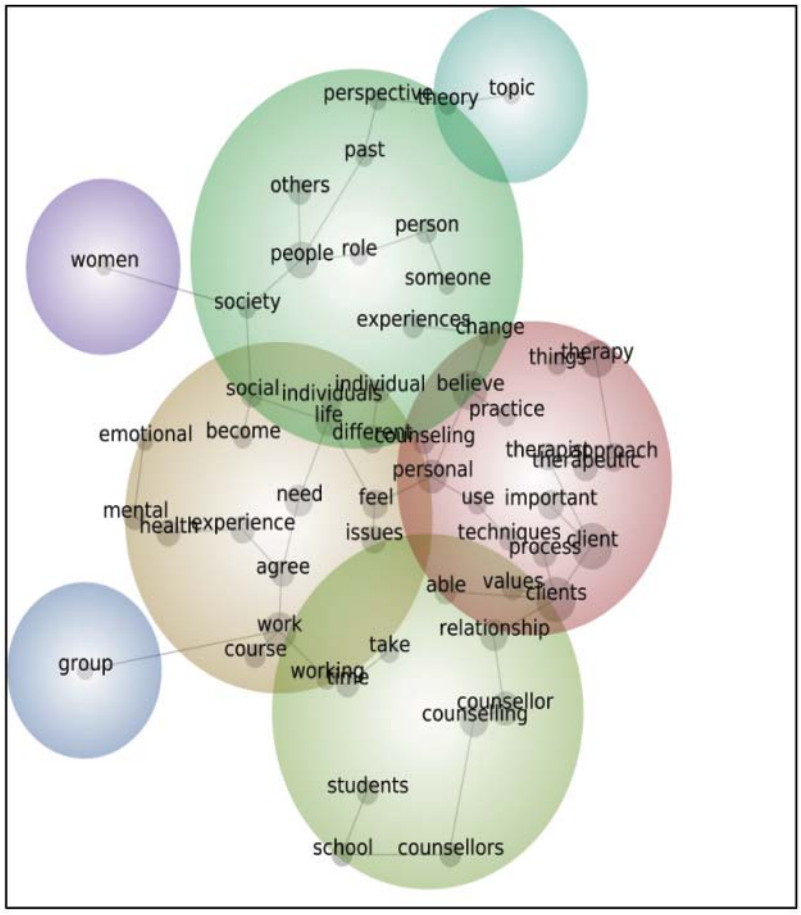

Figure 5: Concept Map of Discussion/Blog Posts and Comments

connections, students also shared in both personal and the collective construction of metacognitive awareness—an awareness of themselves as learners navigating the course material and developing a deeper appreciation of a complex theoretical tapestry:

> *"This course is helping me see the bigger picture in a lot of ways that I missed before, or at least overlooked. How Adlerian theory grew out of psychoanalytic therapy and where Jung fits into the picture."*

> *"The resources posted and subsequent comments also indicate awareness of and appreciation of others in the course- something denied to independent study models of distance education. In a small way students shared struggles and triumphs of formal study with others."*

Moving beyond analysis of their personal learning experiences, students extended their personal metacognitive awareness to an even larger context that included visualizing the integration of learned concepts into to formal practices:

> *"Looking forward, discovering that there are many more overlapping elements within these schools of thought will ultimately make it easier in the attempt to develop a unique therapeutic style. I think realizations such as this will aid in understanding the fluid and dynamic nature of therapy itself, regardless of perspective."*

In the discussion and blog spaces, students demonstrated willingness to critically analysis concepts and share understanding; however, in addition to these immediate goals and concerns, a consistent and dominant theme related to more distal goals and concerns emerged.

Long-range goals and concerns, including the exploration of professional competencies, practices, and career pathways were frequent. Often students expressed practice related concerns so that woven into the discussion is a collective concern for how best to gauge workplace performance expectations:

> *"After reading some of the comments posted above, I see that many of us have concerns and fears that we won't be able to do the job as counsellors, and please pardon me if I have misinterpreted your comments."*

> *"It is definitely something to think about and I think it's great when others pipe in because we get more insight and ideas how to work with clients."*

Complementing the discussion of expectant professional competencies was a sharing of context-specific reflections. These reflections provided feedback as to how those students working in the field went about their daily routes as practicing therapists:

> *"At the end of the day, you need to leave work at work and enjoy your life.* This took me a long time to learn, to put distance between myself and those I worked with*."*

The process of sharing practice related experiences created learning opportunities for those with limited practical experience. Moreover, engaging in these topics of discussion provided opportunity for those currently working in the field to share important experiences and construct a deeper understanding of practice in various contexts, often confirming, challenging, or extending understanding. An example of this extending of contextual understanding was evident in student discussion of the institutional process and structures affecting career choices and pathways:

> *"I am curious as to how you feel about these differences in requirements across Canada and what sort of perspective you can offer as someone currently living in a different country. It is obvious that living in different parts of the world requires different "paths" to get to the same occupational destinations."*

> *"In a previous post I wrote that a B. Ed degree would be beneficial; however, I doubted whether it should be a requirement for the position of a guidance counsellor. In fact, my question is why a person with a B.Ed. degree is considered to be more fitting for a counselling position when people with a BSW, MSW or Masters in Psychology are not even allowed to apply."*

Overall, the discussion of the long term goals and concerns demonstrated willingness or, perhaps, a need, for students to work cooperatively, mapping out important career goals and objectives. It also demonstrates that students were willing to organize and guide the discussion to meet their perceived needs. This tendency for students to self-organize and explore concepts beyond the immediate needs of the course may indicate an important affordance of social software.

Discussion

Role of Assessment for incentive

The issue of rewards and incentives for student activity has long been a subject of sometimes heated debate among educators and researchers. Cognitive behavioural pedagogies note the important inducement to action that is associated with rewards. However, as Kohn (1993) observes, external rewards produce only temporary effects at best and, worse, serve to actively reduce or eliminate intrinsic self- directed motivation among students. In agreement with copious other research in the area (e.g. Ratelle, Guay, Vallerand, Larose & Senécal, 2007; Ryan & Deci, 2000, Sheldon & Krieger, 2007; Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004) Kohn (1993) notes there is an inverse relationship between intrinsic motivation and extrinsic motivation: the more we reward or punish, the less intrinsically motivated individuals become. Breaking out of this vicious circle can

be difficult. Distance education has long been known to have relatively high number of students described as “instrumental” or motivated in their study by a strong desire to do only what is necessary to complete the course (Richardson, 2013; Harper & Kember, 1986). Thus, it is no surprise that a number of students noted the need to reward with marks commensurate with effort required. We also note that the archive and discussion postings were least valued for their contribution to writing term papers and for studying for tests. We have seen in other cases using this Landing system and our Moodle LMS that participation in optional, un-assessed discussions or artifact sites is very limited. It appears from this study, then, that any innovative activity that requires student effort should be recognized in the assessment structure for the course. The activity, though valued by the majority of the students, still sits outside of the main assessed learning activities of the course and there is insufficient constructive alignment between the tasks and the assessment regime to make this more than a means to achieve a few percentage points in the marking scheme. It will likely not become more highly valued unless it is integrated and plays a larger part in the course either through direct assessment or as a means for achieving success in other more highly assessed activities. There are alternatives. Students might be given greater control such as, for example, allowing them to have greater flexibility over how they are assessed or the evidence they present of having met learning outcomes. For those that recognize the value in these activities and who go the extra mile, they might ask that their extra effort is recognized by grades. Alternatively, the work produced and conversations engaged in might be used as the basis for later assessments, bringing greater constructive alignment to the activities.

Value of Activity

From the qualitative analysis of the student discussion and contributions and the emergent themes, we found students were participating on two levels, relating to both immediate and long-range concerns. We found that on one level, students participated in the sharing and co-construction of knowledge related directly to the course and course materials, albeit under very constrained conditions and clearly more for marks than for the innate value of doing so. Further to this, students demonstrated a willingness, albeit under duress, to share and co-construct understanding of their learning or metacognitive processes and understanding. At the most basic level, we see this demonstrated in the discussion of the course text or paraphrasing ideas within the text. At a much deeper level, students shared more holistic perspectives of changing conceptual understanding and growth in learning. The themes of long-range concerns and goals suggest a willingness on the part of the learners to engage in the collective process of mapping out career choices and pathways beyond the course. Students without work-related experience in the field shared concerns while field practitioners shared experiences and made comparisons across contexts, engaging in a process of validating and gauging understanding expectant competencies for future practice. While much of this sprang from the design of the exercise, much of what was shared was neither planned nor anticipated by the creators of the course. It shows the beginnings of self-organization though, likely due to the demotivating effects of the extrinsic control exercised by the course designers, this seldom spread beyond the course boundaries.

It is conceivable that the emergent themes can perhaps be viewed as an attempt, on the part of the students, to engage in an exercise of individually and collectively building self and collective efficacy (Bandura, 1997). From this perspective students can be understood as building confidence and understanding of themselves as students of theoretical concepts and practitioners effectively weaving theory into practice. Moreover, beyond this, student’s interactions may be understood as a collectively building understanding of a career pathway forward. This collective attempt at way finding, a central theme of the discussion, may suggest that students are engaged in an effort

to alleviate self-doubt. We note, however, that this may have simply been for marks, given the constrained nature of the tasks performed, and the absence of engagement by most after the accreditation requirements had been met suggests strongly that this did not become a way of being for the students so much as a chance to stand back and reflect for a moment in a shared context. In itself this is worthwhile, even though it appears not to have been a transformative experience for most participants.

Our analysis of student discussion also indicated there is potential to leverage social software space to alter student experiences of learning at a distance. Students who may not have the advantage of working in a context related to the topic of study may be supported by vicariously sharing in the experiences of others who have a richer contextual understanding of practice. Moreover, the creation of such spaces may prove to be an effective strategy in fostering a greater sense of connectedness among learners. While this may have been achieved using the more controlled Moodle environment, which can equally well be used for discussion and sharing, the value of having a shared, controllable space where teacher presence is perceptibly lower seems to have been important to many students.

A final observation emerging from our analysis of the discussion data concerns the affordances of the social software and learning context. In a sense, our presentation of emergent themes which are connected, but, nevertheless, somewhat of an appendage to what might be the central concerns of navigating the course content and effectively demonstrating understanding in order to meet the stated learning outcomes of the course. As such, the bulk of discussion engaged in on the Landing site can be viewed as an expansion of the scope of context—a process that points to the potential for enhancing online learning spaces with social software. We observed the learning that goes on in these extended networked spaces and how they can be leveraged in the design of distance learning. We might liken this to the sorts of topics and ideas discussed in informal contexts at a briks and mortar campus, which may be useful and relevant to the larger learning context but which are not specifically connected to the learning outcomes of a course.

Teaching Presence

Much of the current literature in distance education is dominated by 2nd generation constructivist pedagogy in which teacher presence is very highly valued. Indeed the most popular educational model in at least paced forms of distance education is the Community of Inquiry Model which presents teaching presence as one of the three critical elements necessary for “deep and meaningful learning” to occur (Garrison, Anderson, & Archer, 2010). Thus, this case provides a very interesting counter example of the value of teaching presence. Certainly the teaching presence is visible in both the design of the learning activity and in the summative assessment of the activity, but notably absent in the components of teaching presence related to encouraging discussion, direct instruction or in diagnosing misconceptions of students. As noted students had mixed feelings related to this absence, but the slight majority of students who responded to the questionnaire enjoyed not having any teacher presence. Obviously, the reduction in teaching presence serves to alleviate the fear of teachers that social network use in courses will substantially increase their workload. This case also gives positive example of use of self-directed contributions and comments that are building blocks for knowledge construction in connectivist pedagogies (Siemens, 2005). However, we should sound a note of caution: while *teachers* may not have been particularly visible and some aspects of the traditional teacher role were missing, teaching presence was still in evidence, in the design of the tasks, in the construction of the environment, and in the assessment of the activities. Teachers may not have been engaged directly, but their influence was ubiquitous

and the fact that many students appeared to write with teachers in mind shows that they were seldom far from students' minds, yet they were also paradoxically outside of the direct discourse on the Landing. It is also important to remember that these students were self-selected to engage on a distance education program that still largely follows an independent study paradigm, so lessons may not transfer well to other contexts.

Connectivist Pedagogy

Two of the most important components of courses that employ connectivist pedagogy are the opportunity to build and nourish networks and the capacity to create, share and enhance artifacts. This case study provides ample evidence of the latter but only minor evidence of the former network building activities.

The number of bookmarks created, blogs and discussion posted and files uploaded gives evidence that artifact creation was vibrant and visible. Many of the students commented in the responses and in the questionnaires on the value of both the resources identified and the comments provided by others. The large majority of the contributions were shared only within the private group context, but students were given the opportunity to expand that access easily if they chose to speak to a larger audience. The artifacts persist beyond the end of the course and thus can be revisited, searched or commented upon even after graduation.

As regards new network formations more than half the students reported no further activity with other students than the required comment on a contribution. Perhaps this relatively short and relatively low valued activity (5% of mark) militates against the need for or opportunity for more robust or extensive network formation among students. In addition, students may be responding to a person who has left the course months ago which also militates against strong network formation. Nonetheless, for those students (a minority in this case) who are program students continuing on to additional courses at the University, we can easily imagine networks forming based on even this limited but potentially ongoing interaction that could extend beyond the course to the department, faculty or university level.

Set based education

The learning activities in this case study could be classified as neither group-like, nor network-like activities but rather set-like activities (Dron & Anderson, 2014b). A "set" of students was created and tasked with curating resources for use and learning by the "set" of other students enrolled in the course, whether concurrently or in the future. While group norms, rules and processes played a significant role, these students were bound more by shared membership of a set than the communal activities of a focused, coordinated group. Thus, like more popular Learni.st or Pinterist sites or even the set of people who edit Wikipedia articles, this learning activity is much less personal than group or network activity. However it clearly provides an example of "set" organization with promise of emerging as an important new social aggregation for both formal and informal learning. When a student uploads a file or a bookmark his or her contribution and annotation serves to add value to the resource and customize it for the set of other students. If the contributor adds appropriate tags to the artifact, it can be searched for and aggregated and displayed in tag clouds to help other students find and assess it. The students who are notified by the system that a new artifact has been added are free to add value with a short comment, or to indicate that they "recommend" or value the comments. These recommendations are then tallied as a way of crowd-filtering the artifacts for quality. Finally the system shows the number of students who have visited the resource- a form of implicit recommendation.

Role of the environment

We have already observed that there appeared to be some value to a significant number of students in having a shared space where teacher control only extended to setting the broad context for the tasks, and shaping the environment to suit. Given that some students had some difficulties using a new and quite different interface, it may have been easier and more practical to simply create a new Moodle space for these interactions to occur. However, the Landing offers some features that Moodle cannot. The clear separation between the Moodle space, where teacher presence is ubiquitous, and the Landing, where everyone is equal (at least in terms of their ability to use the toolset) resembles the difference between a classroom and a common room or tutorial room booked by students to work together. The separation of environments appeared to give permission for different kinds of interaction to develop. Moreover, 57% of students explored further than the confines of the group, exposing them to different perspectives, ideas, and other people.

The fact that there was little or no difference between how students treated blogs and discussion forums, using both in almost exactly the same way, surprised us. In an Elgg environment they do resemble one another closely, especially in a group context where the fact that a blog is fundamentally a publication medium, owned by its author, while a discussion is owned by everyone that participates is less apparent than in a personal blogging context. Given the constrained nature of the activity, it seems likely that a sense of ownership and personal agency that characterizes blogging was simply not there: blogs belong to the group, not to the individual. It would be interesting to explore the effects of either providing training beforehand that makes the distinction clearer, or of following a more connectivist path of encouraging personal blogging, aggregated via bookmarks or, better, tags in the group, to encourage a deeper sense of ownership.

Recommendations for Practice

We are developing new pedagogies (connectivism), using new tools (web 2.0 network enabled toolsets) while working with students with large variations in their network literacy (Bullen, Morgan, & Qayyum, 2011). Thus there is a great deal of learning required by all of us. Social networks only acquire value as they are used—if they are not used, they have no value and, if they have no value, they are not used. Thus, the Elgg-based environment that we have created suffers, like all such installations, from a cold-start problem. The more it is integrated into the teaching, learning and administrative activities of the university, the more value it will have. Thus, our first recommendation is that teachers, designers, administrators, student union leaders and other members of the distance education community make the effort and take the time to both add and reap value from this type of social networking toolset. There is no need that interactions be limited to a single course and we envision a time when groups, nets and sets will flourish at informal friend, student club, department, faculty and university administration levels.

We next note that the archive of contributions from the students will grow over time and that a certain degree of organization and effort is required to curate the archive so as to gain maximum usefulness and value. Students can be instructed to tag their contributions effectively, to organize files and bookmarks into subject matter folders and to recommend artifacts that they find of particular value. These tools help future students to self-organize the archive and prevent information overload. However, some tasks must be done by group owners—likely the teachers. These tasks include deleting postings made by accident or moving artifacts placed in the wrong folders or locations. The group owner should also be aware of the new features being added to the tool set and make effort to be a competent user of the system. We often liken the group owners' task to be like that of a gardener. Occasional weeding, moving, reorganizing, maintaining tools and the time to undertake these tasks are required in the garden. Tossing seed on the ground in

the spring and expecting to return in the fall for a bountiful harvest is unrealistic both in gardening and network curation. But the tasks and the time required are not so onerous so as to discourage millions of gardeners and curators!

Recommendations for Further Research

This type of design-based research typically generates more questions than answers. We list below some of the research questions that arose:

- Is there any effect between course size and connectivist (set-based) interactions? Can the benefits be scaled?
- How can the activity be compelling, but not compulsory so that students are motivated to contribute exclusively by external rewards?
- How can the learning activity by varied to both encourage and support more adventurous activities such as wiki based joint authoring, use of asynchronous interaction tools such as Voice Thread and other multi-media, asynchronous tools and creation (not merely linking to) web based learning resources?
- Assessing the effect of increasing value (through marks) and/or through integration with exams and other learning activities of the networking activity.

Conclusion

This case study has shown that modest amounts of social interactivity can be added at relatively low cost to self-paced courses. The addition adds opportunity for students to acquire social-media literacy network literacy and build some social capital in courses that were initially designed for strictly independent study. The design of the activity, with constrained teaching presence and clear assessment rubrics allowed the intervention to be managed efficiently, with little negative impact on tutor workload. The activity did not suit all students in this investigation, but it must be borne in mind that these students have chosen to take undergraduate courses from this university in expectation that they will be developed and delivered for independent and self-paced study.

This case study demonstrates that self-paced does not necessarily mean independent study. It also shows that intense constructivist group learning is not required and that network and especially set based aggregations may be a more effective way to retain the freedom of self-paced programming, while at the same time allowing for the formation of valuable and potentially enduring educational networks and sets that support non-coercive student learning interactions. We had hoped to inspire and see more networking activities in line with connectivist pedagogy. However, we are reminded that the technology used in a course must always align with and support other components of the course design- notably assessment and learning activity assignments.

References

Anderson, T. & Dron, J. (2011). Three generations of distance education pedagogy. *International Review of Research on Distance and Open Learning, 12*(3), 80–97. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/890/1826.

Anderson, T. & Kuskis, A. (2007). Modes of Interaction in Distance Education. In M. Moore (Ed.), *Handbook of Distance Education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Anderson, T., Rourke, L., Archer, W. & Garrison, R. (2001). Assessing teaching presence in computer conferencing transcripts. *Journal of the Asynchronous Learning Network, 5*(2). Retrieved January 14, 2004 from http://www.aln.org/publications/jaln/v5n2/v5n2_anderson.asp.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Buchem, I., Attwell, G. & Torres, R. (2011). *Understanding personal learning environments: Literature review and synthesis through the activity theory lens.* Paper presented at the Proceedings of the The PLE Conference, Southampton, 10th-12th July 2011. Retrieved from http://journal.webscience.org/658

Buchem, I., Tur Ferrer, G. & Holterhof, T. (2014). Learner control in Personal Learning Environments: A cross-cultural study. *Journal of Literacy and Technology, 14*. Retrieved from http://www.literacyandtechnology.org/uploads/1/3/6/8/136889/ib1.pdf

Bullen, M., Morgan, T. & Qayyum, A. (2011). Digital Learners in Higher Education: Generation is Not the Issue. *La revue canadienne de l'apprentissage et de la technologie, North America, 37*, apr. 2011. *Canadian Journal of Learning and Technology*. Retrieved from http://www.cjlt.ca/index.php/cjlt/article/view/550

Burke, J. G., O'Campo, P., Peak, G. L., Gielen, A. C., McDonnell, K. A. & Trochim, W. M. (2005). An introduction to concept mapping as a participatory public health research method. *Qualitative health research, 15*(10), 1392–1410.

Dron, J. & Anderson, T. (2014a). Agoraphobia and the modern learner. *Journal of Interactive Media in Education, 3*. Retrieved from http://jime.open.ac.uk/article/2014-03/html

Dron, J. & Anderson, T. (2014b). *Teaching crowds: Learning and social media*. Edmonton, Canada: Athabasca University Press.

Dye, J. F., Schatz, I. M., Rosenberg, B. A. & Coleman, S. T. (2000). Constant comparison method: A kaleidoscope of data. *The Qualitative Report, 4*(1/2), 1–9.

Garrison, D. R., Anderson, T. & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The Internet and Higher Education, 13*(1), 5–9. http://dx.doi.org/10.1016/j.iheduc.2009.10.003

Garrison, D. R. & Shale, D. (1990). A new framework and perspective In D. R. Garrison & D. Shale (Eds.), *Education at a distance: from issues to practice* (pp. 123–133). Malabar, Florida: Robert E. Krieger Publishing Company.

Harper, G. & Kember, D. (1986). Approaches to study of distance education students. *British Journal of Educational Technology, 17*(3), 212–222.

Kohn, A. (1993). *Punished by Rewards: The Trouble with Gold Stars, Incentive Plans, A's, Praise, and Other Bribes*. Boston: Houghton-Mifflin.

Paulsen, M. (2008). Cooperative Online Education. *Seminar.net, 4*(2). Retrieved from Seminar.net

Ratelle, C. F., Guay, F., Vallerand, R. J., Larose, S. & Senécal, C. (2007). Autonomous, controlled, and amotivated types of academic motivation: A person-oriented analysis. *Journal of Educational Psychology*, *99*(4), 734–746.

Richardson, J. (2013). Approaches to studying across the adult life span: Evidence from distance education. *Learning and Individual Differences, 26*, 74–80.

Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78.

Sheldon, K., M. & Krieger, L., S. (2007). Understanding the negative effects of legal education on law students: A longitudinal test of self-determination theory. *Personality and Social Psychology Bulletin*, *33*(6), 883–897. Retrieved from http://ejournals.ebsco.com/direct.asp?ArticleID=40A4A0E8EFCFDCDFC11D

Siemens, G. (2005). A Learning Theory for the Digital Age. *Instructional Technology and Distance Education, 2*(1), 3–10. Retrieved from http://www.elearnspace.org/Articles/connectivism.htm

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M. & Deci, E. L. (2004). Motivating Learning, Performance, and Persistence: The Synergistic Effects of Intrinsic Goal Contents and Autonomy-Supportive Contexts. *Journal of Personality and Social Psychology*, *87*(2), 246–260. http://dx.doi.org/10.1037/0022-3514.87.2.246