Self-paced Learners Meet Social Software: An Exploration of Learners' Attitudes, Expectations and Experience

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Abstract

Social networking and communications tools have become widely used in entertainment and social applications and there is growing interest in their use in formal education applications. Distance education and especially those types that are based on self-paced programming models may be the biggest beneficiaries of the use of these new tools to provide previously unavailable capacity for student-student and student-teacher interaction. However, little is known about students' interest, expectation and expertise using these tools. In this study the results of an online questionnaire (n=967) completed by undergraduate students enrolled in self-paced distance education programming are presented. The paper concludes that these students have very diverse views and experiences - however a majority are interested in using these tools to enhance their learning experiences. We also describe the relationship between expertise and expectation - the greater use and experience of learners, the more they expect and desire to have educational social software used in their formal education programming.

Introduction

Online courses and elearning have become omnipresent in both blended and distance models of formal education and informal learning contexts. As in traditional campus-based learning, most institutions use a group-paced model with limited entry and pacing opportunities. However, courses can be offered in self-paced learning models which maximize student access by allowing learners to control not only the starting date but also the length of study. Accompanying this increase in accessibility and freedom is a lack of social interaction and the generally higher attrition rates associated with self-paced learning (Misko, 2000; Anderson, Annand & Wark, 2005). Demographic and individual variables such as academic background, approach to learning and motivation have been linked to persistence in distance education (Kember, 1989; Poellhuber, 2007); however, only institutional variables such as course design and learner support services are under the control of the educational institution and thus able to be constructively manipulated. Most avenues explored to enhance persistence in DE courses focus on the enhancement of student support systems through individual tutoring, peer collaboration and face-to-face meetings (Gagné et al., 2002; Simpson, 2004). Emerging technologies and practices such as social networking, web conferencing and the use of other social software tools create new affordances to support these three interactive components of online learning.

The term social software refers to a set of network tools designed specifically to support sharing, collaboration, socializing and resulting in the development of multiple forms of social capital (Jones & Thomas, 2007). *Educational* social software allows individuals to meet, work together, and share insights, ideas and artifacts, thus affording learners the opportunity to meet each other and forge learning relationships (Anderson, 2006). These tools can be effectively used in all forms of distance education, but perhaps hold most promise for self-paced learning models. Social software tools include profiles, wikis, blogs, posting walls, artifact tagging, web conferencing, calendaring and other network-based tools. Dron (2007) notes that an essential characteristic of social software is that it scales well and gains strength from large numbers of users –thus making them attractive and cost effective for use in open education contexts.

The use of social software is rapidly expanding but primarily for informal and recreational use. However, wikis and blogs are now being used with increased frequency in many education programs (Richardson, 2006) and businesses (CCH, 2008). Facebook (www.facebook.com), one of the fastest growing social networking sites, claims over 300 million users with thousands of 'communities' of students enrolled in formal education institutions. Web-conferencing software (such as Elluminate or Adobe Connect) use real time audio-video communication between a teacher and a class or among students and offers additional collaborative functions including chat, document sharing, white board, polling and application sharing. These tools are used in formal or informal contexts to support team meetings, cooperative work and learning activities (Poellhuber & Chomienne, 2007).

Research on social software interventions in self-paced learning is meager. In research using the social software platform ELGG, Garrett, Thoms, Soffer and Ryan (2007) found that access to peer work and peer relations improved the perception of social presence and the students' motivation. We are therefore cautiously optimistic that we will see similar positive results in distance education developed in self-paced models.

This study is the first phase of a design based research program that develops and tests interventions using social software to enhance distance education programming. The project will use emergent design principles applied to social software (Dron, 2007) to create interventions that facilitate social presence and new forms of peer and networked collaborations. It will investigate how social software can be used to promote social presence and peer collaboration and increase persistence in different learning contexts, providing insights and recommendations that will orient and support the development of social software interventions in distance education and blended learning (Garrison & Kanuka, 2004) used in campus based courses. This paper focuses specifically on the readiness and interest of undergraduate distance learners to use social software in their studies.

Theoretical Rational

Social Presence

Media and educational theorists have long been concerned with the concept of social presence in mediated communications. In our own work we have developed the notion of social presence, which along with cognitive and teaching presence are key components of a community of inquiry (Garrison, Anderson & Archer, 2000). However this work was grounded in the assumption of a cohort group of distance education students. To distinguish between a medium's inherent capacity to realize social presence and the effect of the way it is used in achieving that presence, Kreijns *et al*. (2007) developed the concept of sociability, defined as the extent to which a networked environment is perceived to be able to facilitate the emergence of a sound social space with attributes such as trust and belonging, a strong sense of community, and support for quality working relationships.

Perception of Interaction

Perception has always been an important factor in learner satisfaction for distance learners. Fulford and Zhang (1993) demonstrate this in their study that compared and contrasted satisfaction with perceived interaction and actual interaction. The results of their study show that there was a higher satisfaction rate for learners who perceived that there was more interaction. Moving further in a distance educational context, Shin developed the notion of transactional presence "the degree to which a distance student

perceives the availability of, and connectedness with, teachers, peer students, and institution" (Shin, 2002 p.132). This concept operationalizes Moore's (1993) important concept of transactional distance, which is arguably the most influential theory in distance education research today. We expect that by increasing opportunities for the development of sociability, transactional presence will be increased and associated with increases in persistence, satisfaction and learning outcomes.

Peer Collaboration in Self-Paced Programming

Many researchers have noticed that reinforcement of the interaction component in DE is key to the learner's motivation and persistence (Ludwig-Hardman & Dunlap, 2003; Palloff & Pratt, 1999;(Bernard, Abrami, Borokhovski, Wade, Tamim, Surkes & Bethel, 2009). According to Thorpe (2002), rather than simply adding support activities to existing courses materials, institutions should incorporate cooperative and collaborative learning activities, affording opportunities for learners to draw support from learning communities. Research literature suggests that courses designed on this kind of pedagogical model show retention rates comparable to campus course offerings (Fisher, Thompson, & Silverberg, 2004). Moreover, collaborative activities reflect growing awareness of the socio-constructivist learning paradigms that currently dominate research design and practice in both formal education and informal learning (Lave, 1996; Brown, 2005). However, again most of this research comes from a focus on cohort based model of distance education, can these same benefits be made available to self-paced students?

Self-paced programming designs dominated thinking and research on distance education for many years. Prominent distance education theorists such as Holmberg (1989), Peters (1988) and Keegan (1990) celebrated the individualization, learner freedom, and cost effectiveness of learner-paced designs in the practice and even the definition of distance education. They argued that learner-paced study is an inherently superior form of higher education because of its ability to overcome time and place constraints, its development of autonomy in learners, its economic scalability and the support for individualized (one-on-one) interaction between a student and a tutor. Furthermore, the flexibility offered by this model is associated with the absence of scheduling, commuting, meetings and other constraints and is a major reason students choose to take courses at a distance (Poellhuber, 2005). Many authors attribute the higher attrition rates associated with self-paced study to the lack of social interaction and the sense of student isolation that these kinds of programs often imply (Abrahamson, 1998; Anderson *et al*., 2005). One of the solutions envisioned to resolve this issue is an increase in tutor-learner interactions, but this is a costly proposition (Poellhuber & Chomienne, 2006, Annand, 1999).

Another solution to the lack of social interaction is to stimulate peer interaction and support. While technologies exist to facilitate synchronous and asynchronous forms of group interaction, establishing interaction among groups of learners in a self-paced setting is logistically difficult (Poellhuber & Chomienne, 2006, Annand, 1999). This distinct divide between distance education theorists in regard to the value of self-pacing appears to be essentially unresolved at present (see for example Garrison, 2009 and a rebuttal to his argument (Anderson, 2009)). Optimizing the flexibility of self-paced learning and the advantages of collaboration and social support remains an open and exciting challenge.

According to Paulsen (1993; 2005), this dilemma can be resolved using a technological structure that affords short-term peer cooperation, leaving the timing of this collaboration at the student's discretion. In his "theory of cooperative freedom," Paulsen argued that many students seek not only freedom from place and time, but also freedom to choose media type and content, times of access, and pace. Anderson (2005b) added the students' desire to control the type of relationship (from none to fully collaborative) that they develop in their learning programs. According to Paulsen's theory, while students often seek individual flexibility and freedom, many prefer group collaboration and social learning opportunities. Obviously, in order to engage with other students, their activities must to some degree be transparent and visible, while maintaining desired and appropriate levels of cooperation and privacy (Dalsgaard & Paulsen, 2009)

While some students registered in DE programming might not be very interested in collaborating with peers, research shows that many are (Anderson (2005b). Owens and Stratten (1980) argue that individuals have different and measurable cooperative, competitive and individualistic learning preferences. Students in distance education contexts often ask individuals in their social environment for help (Caspi & Gorsky, 2006, Poellhuber, 2007) but this capacity is constrained in self-paced programming when student's identities are not revealed to each other. If technology makes peers more present and available to them,

and course designs create meaningful activities to cooperatively engage students, they are likely to use them for collaborative support and learning. At the Norwegian Knowledge Institute, 55% of self-paced students choose some aspect of collaboration in their studies (Shaunessy, 2007). Peer collaboration may take different forms, and its intensity varies on a continuum from occasional peer contact to more structured study-buddy or study groups to participation in truly cooperative or collaborative learning activities, the hallmarks of which are shared objectives, interdependence, peer interaction and information sharing (Slavin, 1985). As yet we have little information to guide us in the development of activities or the use of particular technologies that will prove most effective in stimulating productive peer interactions.

Interaction in Distance Education Pedagogy

The traditional self-paced learning model described above is usually associated with a first generation behavioral / cognitive pedagogy model of distance education. This model is associated with creating the "perfect learning package." individualized tutoring and very limited or no opportunity for peer interactions or learning. The model scales well, but denies the situated and contextual nature of learning and does not afford any student-student interaction.

A second generation pedagogy of distance education recognizes learning as a social process and makes the interaction component central to the course design. This model is based upon a constructivist pedagogy in which knowledge is constructed by the learner through interactions with other students, content and the instructor. This model is the basis for the LMS learning environments have been created to support most types of cohort and paced e-learning used today. The model is currently very popular but does not scale well (Annand, 1999) and offers limited flexibility (pace, rigid start dates, fixed times for synchronous activities etc.) as compared to independent study models of DE.

A new pedagogical model in distance education is now emerging that is based on connectivist pedagogy (Downes, 2006; Siemens, 2005; Verhagen, 2006). This model offers the possibility of reconciling the benefits of peer collaboration with the flexibility associated with the self-paced model. Connectivist learning happens through the building of networks of information, contacts and resources that are applied to real problems. For example, if a learner wants to learn about the Community of Inquiry model, they seek out experts in that field and connect to them through reading their works, subscribing to their blogs and Twitter feeds and sharing their own questions and insights through a variety of web 2.0 tools. They would also use the Net to access resources on the Community of Inquiry web site, comment and aggregate these resources with others and both contribute to and learn from and connect with similar interest. Connectivism models of distance education can still be self-paced but with the use of social software tools, students can create and enhance connections with other learners, teacher, content, learning networks and machines. Rather than formal and structured classes, connectivist learning is bursty (occurs in short, uneven spurts), driven by need and interest and is carried on beyond episodic classes, lectures and courses. Collaboration takes new and diverse shapes and intensity, differing from the usual collaborative work teams. Various kinds of resources (files, bookmarks, tweets, blogs, homework) are contributed, commented, tagged, shared and remixed by students and other contributors rather than selected and distributed to the class by course instructors. To date our experience and expertise with connectivist pedagogical models and learning activities is much more limited than that with earlier pedagogical models. Nonetheless, connectivism is an exciting development in the learning field and, in time, this pedagogy could serve as a replacement for our aging and somewhat moribund cognitive/behaviorist models associated with self-paced learning. However are we ready for connectivist learning models and are the networks and tools required accessible to our learners?

Problem

The theoretical arguments above lead us to believe that social software tools have the potential to enhance and perhaps revolutionize the self-paced distance education learning experience.Yet exploration of important questions remain:

- Are distance learners interested in using social software tools to enhance their learning experience?
- Is there a relationship between students' perceptions of their technical proficiency and interest in social software?

- Are distance learners interested in peer collaboration or do they prefer only self-study?
- Are student's gender or age effects regarding these questions?
- What social software tools are students most experienced with?
- What types of social learning activities are students most interested in?

Method

To answer these questions, we created a survey questionnaire to test students' interest, experience and competence using a variety of social software and networking tools. The 90 question survey was developed from a variety of existing and author created questions and coded for delivery online using Lime Survey. The instrument collected data about access, knowledge of and perceived competence with different social software tools, interest in using the listed social software tools for learning and their learning preferences (independent versus cooperative preferences).

The social software experience scale was composed of eleven items. For each of the eleven social software tools identified (blogs, wikis, social bookmarking, web conferencing, social networking, photo publishing, video sharing, podcasting, Twitter, immersive 3D software, e-portfolios), respondents had to answer a question on their experience with these tools based on a 5 point Likert-scale:

1. None, Non User: Have no idea about it
2. Beginner: Have some knowledge about it
3. Intermediate: Own an account, can search, tag and comment
4. Advanced: own an account and do contribute with postings, files or resources
5. Expert: I know most everything about using this tool

Students were also asked how interested they would be in using each of these social software tools in their Athabasca courses. The learning preferences scale was adapted from Owens & Stratton (1980). Of the original scale, we kept 2 of the 3 subscales (independent and cooperative learning preference), not retaining the competitive subscale. We adapted the formulation of the items to the specific context of postsecondary distance education, when needed. Each subscale is composed of 13 items, on which respondents must answer on a 5 point Likert-scale (strongly disagree, disagree, neither agree or disagree, agree, strongly agree). Examples of some of the items are provided in table 1:

Questions from Owens & Stratton Learning Preferences Scale (1980)
Working with a group leads to poor results.
I prefer to work by myself so I can go as fast as I like.
It is helpful to put together everyone's ideas when making a decision.
I do not like working by myself

Table 1 – Example items from Owens & Stratton (1980)

The instrument draws items and scales from previously validated survey instruments, with minor changes to adapt to the distance education context and to update the items with new technologies. The instrument was piloted with 25 students. Subsequently, an invitation to complete the survey instrument was emailed to all 3,703 undergraduate students at Athabasca University who enrolled in a self-paced undergraduate courses during the month of August 2009. A total of 967 surveys were completed (return rate of 31%). This rate, although not high, was not unusual for email delivered surveys (Sheehan, 2001).

A related study validated a French version of the survey instrument at a dual mode distance learning university (University of Montreal) and at Cegep@distance, an institution offering college level distance courses in Quebec. The survey instrument is available from AUSpace. We welcome its re-use by other researchers.

Results

There were more females than males in our sample, which is consistent with registration demographics at

the University (Athabasca University, 2000). The age of the sample was quite evenly spread among four categories. The demographic details of the sample are displayed in Table 2:

Gender/Age	Frequency	Percent
Male	251	26.8
Female	685	73.2
Total	936	100
16-24 years old	225	25.5
25-32 years old	258	29.3
33-44 years old	180	20.4
45 or more	219	24.8
Total	882	100

Table 2 – Sample Characteristics

Most of the sample (59.8%) work full time and most (80.1%) are active distance learners, meaning that they have taken at least one previous distance education course and 47% having taken 4 or more distance courses. The sample was also quite confident in their abilities to succeed at the course in which they were enrolled (mean of 3.9 on a 5 point scale of confidence in completing the course). The sample also had good online access with 98.7 % having access to the Internet and 94.6 % using a high-speed connection.

Despite the Internet connectedness of the sample and technological proficiency, most of the distance education students in this sample have limited experience with social software. For example, 81% rate themselves as a beginner or having no experience using blogs, which as noted earlier, is one of the most common types of social software used both recreationally and in education. Some tools, such as podcasts, e-portfolios and virtual worlds had very high responses rates of "don't know." The survey participants did however know about social networks: 55.5 % rated themselves as intermediate, advanced or expert. With the documented popularity of Facebook and other social networks this is not too surprising. Further, the popularity of photo sharing is also reflected in relatively high levels of expertise (only 26% are non-users) for both men and women.

The amount of experience with social software tools is shown in table 3. The resultant mean reported was based on a five point Likert-like scale: 1 signified non-user, 2 beginner, 3 intermediate, 4 advanced and 5 was expert. We calculated the level of interest for males and females and used multivariate analysis to find there were significant differences (Wilks' Lambda =.852, $F=14.60$ $p<.001$). Individual technology differences in regard to experience with the technologies are reported in Table 3:

What has been your experience with….	Gender	Mean	F	p
Blogs	Male	2.19		
	Female	1.82		
	Total	1.92	28.49	.000 **
Wikis	Male	2.0		
	Female	1.52		
	Total	1.65	65.67	.000 **
Social bookmarking	Male	1.48		
	Female	1.19		
	Total	1.27	33.82	. 000 **
Web conferencing	Male	2.08		
	Female	1.63		
	Total	1.75	57.94	. 000 **
Social networking	Male	2.85		
	Female	2.81		
	Total	2.82	0.26	.610
Photo publishing	Male	2.47		
	Female	2.43		
	Total	2.44	0.14	.713
Video sharing	Male	2.34		
	Female	1.91		
	Total	2.03	31.71	. 000 **
Podcasting	Male	1.85		
	Female	1.42		
	Total	1.53	59.19	. 000 **
Twitter	Male	1.71		
	Female	1.46		
	Total	1.53	17.37	. 000 **
Immersive 3D software	Male	1.46		
	Female	1.12		
	Total	1.21	65.86	. 000 **
E portfolios	Male	1.45		
	Female	1.22		
	Total	1.28	26.11	. 000 **

Table 3 Experience level with social software

There were significant differences between the levels of expertise reported by the two genders with all the social software technologies except photo sharing and social networking. In all of the ratings of technologies self –rated experience and expertise that of males was higher than for females.

Despite the varied level of expertise and exposure, most students had interest in seeing some social technologies used in their distance education programming. In our instrument, the participants were asked to express their interest using the following scale: not at all interested (1), not very interested, (2) interested (3), very interested (4). Those who answered that they did know about the technology are not counted in the table below. The results are displayed below in table 4:

What is your interest in using _____ in Athabasca courses?	% Interested or Very Interested
Video Sharing	65.4
Web Conferencing	62.0
Podcasting	56.2
Social Networking	50.9
Blogs	45.3
Wikis	41.5
Photo Sharing	37.4
Social Bookmarking	33.7
E-Portfolios	33.2
Twitter	15.7

Table 4 - Interest in using different social software for undergraduate, self-paced, distance courses

The items measuring students interest and comfort with both independent and cooperative work showed very mixed results. Most of the sample is open to cooperative learning, but at the same time the majority value the freedom of working on their own. For example, when asked, "How interested are you in collaborating with other students?" The results were very evenly split – 53.6% of the sample indicated they were interested or very interested while 46.4% expressed that they were not at all interested or not very interested. Further, nearly half (44%) of students disagreed with the statement that "I like to work in groups while taking courses." Finally, there is a dissonance when it comes to group work by distance learners: many seem to be open to peer collaboration but yet 70% of the respondents enjoy working independently. The results from the cooperative/independent learning preference scale (Owens & Stratton, 1980), reveal quite mixed results with no general preference for either independent or cooperative learning. Moreover, when we combined the cooperative and independent items into a combined scale, we found no significant difference between males and females. It should be remembered that these are students who have enrolled in a model of learning that is almost completely independent study, so half of this population, indicating interest in collaboration, probably underestimates the interest amongst all types of distance education students.

Survey participants who were interested in cooperative work expressed interest in a number of ways to mediate this communication. 41% preferring using the Internet, 19% preferred face-to-face and 10% chose telephone as their preferred modes of collaboration.

When asked what type of activities they were most interested in doing while collaborating Table 5 details the following specific learning activities.

Interest in working with others on Specific Collaborative Activities	Total (n=882)
Discussions with other students	70%
Sharing Internet Resources	44%
Working on a project	40%
Studying for exams	38%
Doing an assignment or coursework	34%
Other Activities	20%
Writing a paper	18%
Creating web pages or resources	18%

Table5 – Interest in specific collaborative activities

Interestingly, the most popular type of social learning activity is the familiar discussion activity with other students. Surprisingly is the rather low interest in creating web pages or resources - the type of "user generated" content that is a defining feature of web 2.0 technologies. It is also interesting to note that the most common type of activity in online distance courses (threaded discussion with other students) is the activity of most interest to these self-paced students.

We used cluster analysis to create three groups of students based on their level of experience with social software, that was calculated from the scale of 11 items (see table 4). We called these three groups Beginner, Intermediate and Advanced groups. A multivariate test revealed significant differences between the three skill classifications (Wilks'Lambda =.107, F 457 $p<.001$). Thus, we calculated differences on individual items (table 4) all of which were significant at <.001 level except twitter use ($p <.05$). As table 4 shows, interest in social networking tools increases with the level of technical proficiency.

The mean reported is based on a 4 point Likert-like scale where 1 not at all interested, 2 not very interested, 3 interested, 4 very interested.

How interested are you in having _____ used in AU Courses	Social software experience profile	Mean	N	F
Blogs	Beginner	1.86	134	
	Intermediate	2.06	216	
	Advance	2.40	211	
	Total	2.14	561	14.93**
Wikis	Beginner	1.69	134	
	Intermediate	1.96	216	
	Advance	2.46	211	
	Total	2.08	561	32.72**
Social Bookmarking	Beginner	1.68	134	
	Intermediate	1.94	216	
	Advanced	2.20	211	
	Total	1.97	561	14.18**
Web Conferencing	Beginner	2.08	134	
	Intermediate	2.38	216	
	Advanced	2.73	211	
	Total	2.44	561	18.56**
Social Networks	Beginner	1.93	134	
	Intermediate	2.29	216	
	Advanced	2.48	211	
	Total	2.27	561	12.58**
Photo Publishing Tools	Beginner	1.70	134	
	Intermediate	2.01	216	
	Advanced	2.25	211	
	Total	2.03	561	15.50**
Video download and sharing	Beginner	2.15	134	
	Intermediate	2.46	216	
	Advanced	2.74	211	
	Total	2.49	561	15.27**
Podcasting	Beginner	1.85	134	
	Intermediate	2.28	216	
	Advanced	2.70	211	
	Total	2.34	561	31.21**
Twitter	Beginner	1.50	134	
	Intermediate	1.66	216	
	Advanced	1.74	211	
	Total	1.65	561	3.26*
E-portfolios	Beginner	1.66	134	
	Intermediate	1.94	216	
	Advanced	2.18	211	
	Total	1.97	561	13.32**

* p< .05 * p< .001

Table 6 – Interest in social software tools broken down by social software experience

A variance analysis was used to determine if there was a relationship between age and social software experience and revealed that the average age of the beginner (35.14) is significantly higher than that of the intermediate (33.02), also significantly higher of the advanced users (31.26). Posthoc LSD tests showed significative differences at $p < .05$. LSD tests were used as proposed by Cardinal & Aitken (2005).

The survey instrument also provided an invitation for students to describe, in their own words, any positive expectation or concerns they have had using these social technologies in their distance education programming. We received 478 response with positive expectations and we classified them into emerging themes (note that total number of theme classifications items exceeds number of comments as some comments were coded under more than one theme). The highest number of positive expectations related to expected increases in quality of programming (n=355), followed by expectation of positive increases in interaction opportunities (n=268), expectation of positive results from use of technology and increases in computer literacy (n=151) and expectations that time will be more effectively used (n=47). Typical response were:

> "I think that using the networked technologies would be useful for students who would like to share and exchange ideas regarding the courses available at AU. Sometimes, it is difficult to do this when we live abroad and do not have friends or peers who we can talk to...The tutors are very helpful but it would be nice to have a student's perspective on things that relate to my coursework."
>
> "I would love to have virtual classrooms with video lectures for my courses. It would be great to have somewhere to go talk to people in my courses."
>
> "I think it would be a great thing to help engage people who are afraid of technology and it might be a way to get people, like me, who are not so crazy about working in groups to try it out".

Concerns about using social software tools were also noted by 473 students. We classified these as relating to technical issues (n=187); quality concerns such as potential for spam, (n=163); concerns over time requirements (n=161); privacy concerns (n=58); and fears that the use of these technologies may constrict learners' freedom of time shifting (n=47). Our longest and perhaps most perceptive itemizing of concerns was written by a student as follows:

> "They (social software) could become distracting from the actual trudging work of reading and deep thought/reflection. Production values and schedules are easy to underestimate with media other than writing (sound and video are more difficult from my experience). Critiquing new media outcomes (video, podcast, some blended variation of presentation) will be increasingly technical. The 'entertainment' value judgment of sound and video may bias a final product towards the positive or negative. Personality becomes more prevalent in the marking of material. Lastly, say goodbye to grammar and expect fluffier subject matter."

Discussion

This research revealed that students in self-paced programs are very eclectic in their interest in using social software tools in distance education programming and their experience and expertise with these tools.

The students are generally technologically savvy in the sense that 92% like using computers for research, 70% report spending a lot of time on the internet and 97% feel confident using the computer on the Internet. However, their exposure and expertise with various social software tools can only be described as moderate. Only with the technologies of social networking, photo and video sharing do students rate themselves, on average, above the beginner level and none above the intermediate level.

The popular stereotypical descriptions of male and female differences and younger versus older students were also supported in this study. Men reported significantly higher experience in all technologies and these differences were significant in all but reported expertise in social networking (ie Facebook) and

photo-publishing (ie Flickr). In addition older students professed less expertise in social software tools than younger students.

Perhaps of most value from this study is the quantification of interest expressed by students in these self-paced programs in opportunities for peer cooperation. 74% of the students agreed “they prefer to work by themselves so I can go as fast as I like” yet 68% “like to be able to use the ideas of other people as well as my own and only 29% agreed that they “like work best if I do it by myself without anyone’s help.” These social tools used in networked (not group) teaching models (Dron & Anderson, 2009) may offer a solution that allows learners to work at their own pace, yet engage in time limited interaction and cooperative learning activities.

The tools that students are most interested in seeing used in formal programming were video sharing (ie YouTube) web conferencing, podcasting and social networking. It is interesting that these most popular tools are primarily used for teacher presentations (in formal education) and that only social networking of the top four choices is primarily used for student content creation and sharing. These results concur with those from an Australian campus university study that found “the use of collaborative and self-publishing ‘Web 2.0’ technologies that have often been associated with this generation is quite low” (Kennedy, Dalgarno, Gray, Judd, Waycott, Bennett, Maton, Krause, Bishop & Chang, 2007). Further these results, while not disproving significant interest in the use of net technologies, do not support the often extreme ideas of those who argue “net native” students think, and behave in radically different ways than non net natives (Prensky, 2001).

However, we noted significant relationships between expertise and a desire to have these tools used in formal programming. The cluster analysis showed the emergence of a sub-group of advanced users of social software whom we refer to as the “socials.” While the use of social networking (e.g. Facebook) and video sharing is widespread across respondents, the “socials” tend to use a wider variety of social software, be more competent technically and more collaborative than non-socials. Younger males are overrepresented in this category.

Further we found that the extent of use of any social tool was significantly related to use of other social tools. These two relationships cause us to see the potential for the rapid (and perhaps viral) emergence of much more social networking interest among students. As students are exposed and gain expertise in one tool, they soon use that expertise and interest to explore other tools and further increase their interest in seeing these tools used in formal programming. Perhaps this is not surprising given the limited exposure of students to these tools, but it indicates that if designers and teachers are to gain the benefits of student generated content and comment, they will have to expect to expose, train and support learners in acquiring the skills and motivation to make these contributions. Alternatively providing means through which students can interact online could also result in peer sharing of expertise and perhaps viral increases in social skill and expectation.

Finally we note a modest increase in interest among these self-paced students in collaboration with other students. A study we completed five years ago reported a 49% interest in collaboration (Anderson, Annand & Wark, 2005) compared to the 53.6% interest in this study. It is also interesting to compare this number with results from two Francophone postsecondary institutions in Quebec who in an identical (though translated instrument) to the one used in this study reported that 36 % of distance education students were interested in collaboration in their distance course. This may indicate cultural differences in interest in collaboration between the two populations, but much more work must be done to verify this result.

For some of the social software tools, the percentage of students interested in using them within their distance courses is higher than the percentage of students showing interest in traditional group-type collaboration. This is true for social networking, Web conferencing, video and photo sharing. These results and the ones presented earlier might be interpreted as an interest in the newer affordances of collaboration made possible by social software: indirect, weak-ties, and networked collaboration. While some learners might enjoy teamwork and true cooperative or collaborative activities, others may be interested in less constraining networked models of collaboration.

Conclusions

Despite the persuasive arguments listed earlier that cooperative and connectivist networking activities could enhance the distance learner's experience, undergraduates (at least in this sample) who are currently enrolled in self-paced, independent study models of distance education seem to have mixed feelings in regard to augmenting their learning using social software. The knowledge and expertise with various social software technologies is relatively low and related to age and gender - men and younger students having higher use and higher interest levels in all technologies surveyed.

Many proponents and researchers in distance education are urging adoption of more net based technologies in program development (Downes, 2005; McLoughlin & Lee, 2008). However, evidence from this survey indicates that familiarity and competence using these technologies is not universal and varies enormously among current students. This suggests that efforts to introduce social technologies need to be accompanied with programs and support that both help learners (and teachers) gain competence, find useful applications and educate them to the potential pedagogical benefit of their use. Particular attention should be paid to the needs of female and older students who are less proficient and have lower exposure and interest in the use of social networking technologies.

At least half of our sample are interested in working collaboratively in some way with other students- but another half are not. This implies that developers of distance education and especially those working with self-paced models should not mandate social interaction, but rather create compelling but not compulsory activities, so that both social and independent learners can be accommodated. Of the diverse types of social networking tools investigated in this study the most familiar ones are the ones that students are most interested in using in their distance education courses.

This study is a single snap shoot in a time of rapid change and evolution of social networking tools. It shows that there is interest, but it is not universal, for use of these tools in formal distance education programming. Social software offers the capacity to support cooperative learning while retaining the important freedoms associated with self-paced study. It also exposes students to lifelong learning skills and networks that are the basis for connectivist learning pedagogies. Thus, we remain optimistic, but better informed by this study, as to the challenges and supported needed to integrate these tools in distance education programming.

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