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If You Build It, Will They Come? An Evaluation of Whiteboard, a Networked Academic Profiles Project

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Acknowledgements

The project was a collaboration between faculty members in the Department of History and the Department of Religion at the University of Toronto. Project Lead Matt Price has directed various digital initiatives of the Department of History. He is the director of History and Its Publics (HiP), and teaches 'Hacking History' and 'History and Its Publics in the Digital Age' in the department. He oversaw technical development of Whiteboard.

Project Lead Frances Garrett, Associate Chair, Department for the Study of Religion (DSR), has been director of the Religion in the Public Sphere Initiative, developer of the Mapping Religious Sites project and the DSR intranet community, on the Executive Board of U of T's Project Open Source | Open Access, and has received several grants for projects focused on teaching and research with technology. She coordinated the use of Whiteboard in religion programs and courses in tandem with developments in history.

Stian Håklev, a PhD student in digital learning at the Ontario Institute for Studies in Education (OISE), was hired as a research assistant and helped develop the questionnaires and focus groups, analyze usage data from the Whiteboard site, and support the technical development and design. He is also the main author of the current report.

Naxin Zhao, a PhD student in digital learning at the Ontario Institute for Studies in Education (OISE) and member of the Education Commons staff, was hired as a developer to install, manage and customize Drupal for the purposes of this project.

Undergraduate fellows played a key role as members of the project team, playing an active role in designing the site, assessment models and the dissemination strategies. They helped “boot-strap” content on the web site, as well as recruit students to the site and they were closely engaged in the assessment research.

The team also consulted a number of faculty members and staff experts at the University of Toronto in areas of digital and peer learning and assessment, hosting of collaborative infrastructure and research methods.

Executive Summary

This project was designed to evaluate how an online social learning environment implemented within the disciplinarily-defined context of a university department might enhance academic engagement, research collaboration and the achievement of learning outcomes among undergraduate students. In developing this research, we were guided by the following research questions:

- How can social networking and progress-tracking technologies enhance academic engagement and student experience in a discipline-bounded environment?
- How can networked academic profiles create a more cohesive academic experience for students?
- Can use of networked academic profiles strengthen students' academic orientation to new media and information literacy?

To address these questions, we created a web-based academic network for students and faculty in the Department of History and the Department for the Study of Religion at the University of Toronto. Secure online profiles, designed to reflect and support academic interests and achievements, aimed to enable students and faculty to identify others within their departmental community with shared academic interests, expertise and experiences, and to form networks and working groups around those interests. The present report describes the development of this online network and our assessment of its usage, through surveys, focus groups and site usage data, over a period of three years.

The University of Toronto is a very large institution with an uneven level of academic support available to students. Formal academic advising services are rare and because class sizes are large, students may go through a four-year program without getting to know other students who share their academic interests. By enabling social networks to form around academic interests, our project aimed to enhance students' vision of their own studies as part of a wider discipline that has relevance in and beyond the university. We hoped to create a more cohesive academic experience for students in our programs by encouraging an attitude that learning and professional development are both self-directed and collaborative efforts. Additional objectives for our academic social networking tool were to help students in our programs:

- develop a practice of collaborative work;
- develop a strong academic identity;
- see learning as an inherently social process;
- strengthen professional career preparation;
- enhance literacy in new media or digital technology approaches to scholarship and learning; and
- integrate learning from a variety of sources (such as texts, internet sources, the media, personal informants) and display of learning with a variety of media (texts, images, sound, video).

Over the course of our project's first year, we worked with a student group to design the social networking site, which we called Whiteboard. Once ready, the site was advertised widely in both departments through presentations in large courses and email invitations. Students filled out a simple profile that included

questions about courses taken and disciplinary interests and began to write blog posts, ask questions and record upcoming events relevant to their disciplines. We hoped that through participation in Whiteboard, students would identify peers with similar educational goals, and faculty also might more easily identify potential research assistants with particular skills or interests. To facilitate this, students could keep records of the courses they had taken and tag their profiles with keywords. In addition to supporting academic networking and mentoring in the particular educational context of a departmental unit, these persistent, interlinked academic profiles were designed to incorporate elements of an e-portfolio, allowing students to track and reflect on progress through their degree and see their own educational identity develop as part of the larger context of their community of peers and professors.

In this report, we review some of the literature surrounding e-portfolios and the connection between social networking tools and academic identity, as well as some challenges that are documented around the use of social networking tools in academia. We also describe in detail a questionnaire we designed for distribution in first- and second-year undergraduate courses to help us understand student beliefs about learning, the value of social interaction and peers for learning, attitudes towards their discipline, major and department, as well as use of social media. We analyze the results and compare these with the findings from a number of focus groups.

We find that our initial assumptions regarding student needs were to a large extent reaffirmed through our questionnaire and focus group interviews, which also brought interesting findings challenging the notion of the digital native – students are avid Facebook-users, but wholly unaware of the rich disciplinary resources and communities that exist digitally. We found a strong relationship between a positive attitude to learning from peers and almost every other measure on our questionnaire – determining whether the relationship is causal, however, would require further research. Finally, we began to understand more about the dilemma between being present where the students already are (on Facebook) or constructing a new and separate site. The researchers, who have all benefited immensely from their digital peer networks, also found surprising the number of students who did not believe that the Internet was a fruitful venue whether for research or deep engagement around ideas. This could be related to the specific disciplines we targeted (history and religion) and the students attracted by these disciplines.

The report also describes iterative specification and design of the website, as well as the challenges and opportunities enabled by building our own separate website, rather than building on an existing social network site such as Facebook or using off-the-shelf software. The development of the site turned out to be much more technically demanding and to require far more time and energy from the primary investigators for specifying functionality and designing user interfaces than expected. However, in the end we were still left with something far inferior to Facebook and other popular social networks when it comes to slickness and ease of use. Despite heroic efforts by our student fellows to boot-strap the site with very high-quality and engaging content, and to recruit students to participate in the community, the site was never able to reach a sustainable level of activity.

Finally, the report analyzes usage data, which show that the website failed to reach sufficient activity to become self-sustaining, despite serious outreach efforts as well as bootstrapping of content by a group of work-study students. In our case, the project did not ultimately succeed in meeting our goals and we conclude with a few suggestions for others who may be faced with similar challenges and who may be considering an online social networking solution. A careful assessment of the design and costs should be undertaken with an understanding that students come to social media with very high expectations for the technical sophistication of platforms. We also suggest that while social media may be an appropriate method of addressing some aspects of the problems articulated by this project, we feel that a social media solution should be part of a larger community-building initiative. A social media digital project is less likely to succeed if it is not affiliated with other networking and support methods, such as clubs or student associations, awards ceremonies or other kinds of academically oriented social events.

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Introduction and Project Description

This project was designed to evaluate how an online social learning environment implemented within the disciplinarily-defined context of a university department might enhance academic engagement, research collaboration and the achievement of learning outcomes among undergraduate students. In developing this research, we were guided by the following research questions:

- How can social networking and progress-tracking technologies enhance academic engagement and student experience in a discipline-bounded environment?
- How can networked academic profiles create a more cohesive academic experience for students?
- Can use of networked academic profiles strengthen students' academic orientation to new media and information literacy?

To address these questions, we created a web-based academic network for students and faculty in the Department of History and the Department for the Study of Religion at the University of Toronto. Secure online profiles, designed to reflect and support academic interests and achievements, aimed to enable students and faculty to identify others within their departmental community with shared academic interests, expertise and experiences, and to form networks and working groups around those interests. The present report describes the development of this online network and our assessment of its usage, through surveys, focus groups and site usage data, over a period of three years.

The University of Toronto is a very large institution with an uneven level of academic support available to students. First-year courses may have hundreds of students; even by the third year, students may still have courses where they interact little with their colleagues. In both the history and religion departments, it can take a student years to discover who else shares their particular interests within these disciplines. Those who are already excited about the study of history or religion typically have difficulty finding communities with which to share that excitement outside of the classroom; those who are less motivated have few opportunities to become inspired by extracurricular initiatives. It is often difficult for students to find courses in subjects that interest them, even within their own department. While undergraduate offices and individual faculty members do their best to provide advice on an ad hoc basis, students are not assigned academic advisors and therefore most are left to their own devices to navigate their choice of courses. Hoping to address these and other issues of student experience, our project aimed to enhance students' vision of their own studies as part of a wider discipline that has relevance in and beyond the university. By encouraging among students an attitude that learning and professional development are both self-directed and collaborative efforts, we hoped to create a more cohesive academic experience for students in our programs. Additional objectives for our academic social networking tool were to help students in our programs:

- develop a practice of collaborative work;
- develop a strong academic identity;
- see learning as an inherently social process;

- strengthen professional career preparation;
- enhance literacy in new media or digital technology approaches to scholarship and learning; and
- integrate learning from a variety of sources and display of learning with a variety of media.

Over the course of our project's first year, we worked with a student group to design the social networking site, which we called Whiteboard. Once ready, the site was advertised widely in both departments through presentations in large courses and email invitations. Students were provided with login credentials and encouraged to fill out a simple profile that included questions about courses taken and disciplinary interests. With encouragement from professors and peers, site members began to write blog posts, ask questions and record upcoming events relevant to their disciplines. Additional details about the site and its usage are provided in the Web Design Process section below.

We hoped that through participation in Whiteboard, students would identify peers with similar educational goals and faculty also might more easily identify potential research assistants with particular skills or interests. To facilitate this, students could keep records of the courses they had taken and tag their profiles with keywords. In addition to supporting academic networking and mentoring in the particular educational context of a departmental unit, these persistent, interlinked academic profiles were designed to incorporate elements of an e-portfolio, allowing students to track and reflect on progress through their degree and see their own educational identity develop as part of the larger context of their community of peers and professors. Finally, participation in Whiteboard's networked academic profiles – created using contemporary web technologies – would develop information literacy in both students and faculty.

In this report, we review some of the literature surrounding e-portfolios and the connection between social networking tools and academic identity, as well as some challenges that are documented around the use of social networking tools in academia. We will report in detail from the development and analysis of a questionnaire instrument distributed to undergraduate students in history and religion. We used this tool to better understand students' attitudes and beliefs surrounding learning, interaction with peers and professors, and use of social media. We will also discuss a series of focus groups we conducted that aimed to deepen our understanding of the above-mentioned questions.

In the final part of the report, we will discuss the design process and our resulting specifications for the website. The report will conclude with an analysis of usage data from the website and a discussion of lessons learned and avenues for future research.

Literature Review

E-Portfolios

This project was informed by several linked conceptual frameworks about which significant research has been done, as well as by several practices already in place in our departments.

Firstly, the conceptual core of the project lies in research on the use of academic portfolios to develop a practice among students of the careful self-evaluation of their learning, in the form of a "purposeful inquiry into the structure, processes, and substance of one's own work" (Dykstra, 1993). Portfolios are known to be effective methods of engaging students in the assessment of their own learning, and our conception of networked academic profiles had a core e-portfolios function that was derived from this body of research. The systematic compilation and evaluation of a cumulative portfolio of work can increase a student's sense of responsibility for his or her learning, which in turn builds self-confidence. Collaborative discussion of student portfolios can help students see how others are learning and recognize gaps in their own development. As Fenwick puts it, "portfolios demand that students responsibly create, consider, and evaluate learning" (1999, p. 10). It is this process that we wished to help develop for students in our departments.

We were especially intrigued by how the creation of cumulative portfolios could help students see themselves as knowledge creators (Cooper & Brown, 1992; Zinn, 1998). With electronic portfolios, students can refer to all the work they have created in a variety of media. Some courses in our departments ask students to create podcasts or videos, for instance; gathering this work together with summaries of more traditional writing assignments may facilitate an understanding of how learning from various sources may be integrated. In this project we were understanding the use of e-portfolios in a "constructivist" as opposed to "positivist" way, which in turn affects how we see them act as tools of assessment (Liaw, 2004).

In a positivist model, e-portfolios would be evaluated in their entirety in relation to specific learning outcomes. We did not propose to evaluate (using grades, for example) the end-product of our students' e-portfolios in this project. From a constructivist approach, by contrast, e-portfolios embedded in academic profiles may facilitate a social learning environment, with the profile recording a "learning process and record of individual or collective thought" (Barrett & Wilkerson, 2004). Self-assessment and self-reflection over time and peer evaluation in a social context are key components of the constructivist approach. We thus saw networked academic profiles as tools for the fostering of an integrated learning experience that is strongly self-directed but also broadly social in nature. We found this model to be most suitable for our very large, urban institutional environment and to respond most directly to our students' expressed needs.

Academic Identity

Secondly, Whiteboard was designed with the potential to mentor students into an academic culture using the kinds of social networking tools and approaches with which they are most comfortable. Researchers have shown that students credit social networking tools in particular with the enhancement of their own technology skills, creativity and communication skills; other studies have shown social networking tools to enhance students' 'social capital' and psychological well-being (Ellison et al., 2007; Lack et al., 2009; Vergeer et al., 2009). Our networked academic profiles harvested these benefits within the targeted academic learning goals of a university department, inspired by a variety of projects at other institutions (e.g., McNely et al., 2010), but in particular those that focus on the broadening of curricular goals to include participatory education and mentored engagement in public discourse (Jenkins et al., 2006).

These approaches were largely untested in our own departments (with exceptions noted above, led by Garrett and Price), where Blackboard stands alone as a method to help create community, and yet its use is restricted to the discrete confines of a single course. Studies of popular external tools such as Facebook are extensive (Acquisti et al., 2006; Ellison et al., 2007; Boyd, 2008; Steinfield et al., 2008), and yet such tools do not easily allow students to create profiles that are uniquely academic. These sites are also plagued by serious privacy concerns (Barnes, 2006; Lenhart, 2005). Whiteboard introduced a unique opportunity for the development of a localized, strongly focused academic identity and a streamlined means to connect students and faculty members with common interests.

Social Networking Tools in Teaching

Finally, Whiteboard built on the project leads' own experience with the power of social networking tools in teaching, and on the example of classes and projects at other institutions. City University of New York's 'Academic Commons' (http://commons.qc.cuny.edu/) is probably the closest analog to our effort, but it lacks the attention to department-scale networks that was central to our pedagogical goals. The BibApp application (http://bibapp.org/) provides a rich profiling service for faculty, but offers no similar functions for students. Academia.edu (http://www.academia.edu/) has rich networking functionality for faculty and graduate students, but provides no mechanism for improving social cohesion at the departmental level. Whiteboard's aim was to build on the best aspects of these existing projects and to present both our software and our results to public scrutiny.

Challenges

We identified two primary areas of potential challenge in this project. First, much research on participation in online networks has focused on the potential for cyberbullying (Huffaker, 2006; Li, 2007) or, more generally, privacy issues (Barnes, 2006; Lenhart, 2005). We were attentive to such concerns. However, we felt that the strong focus of this project on the mentored construction of explicitly academic profiles may, in fact, help train students to create public online personas that are pointedly professional and therefore strongly distinct from their own personally motivated online activities. The creation of professional online profiles is today a key part of public life and we felt therefore that explicit training in how to craft a public professionally oriented identity could be an important component of a university education.

Questionnaire and Focus Group Research

Designing the Questionnaire

We wanted to understand more about the undergraduate population in history and religion, particularly with regards to the key issues in our study – use of social media, relationship with instructors and department, disciplinary identity and perspectives on learning. To address this knowledge gap, we chose to survey a portion of the students in our departments on these topics of interest. We adapted a part of the

questions from a social learning questionnaire developed at the University of Munich (Radchuk, 2013) and formulated the rest of the questionnaire ourselves. The questions were brainstormed by the research assistant and the two PIs, and then tested by administering the questionnaire to 10 students in the project's undergraduate fellows group. This was followed by a detailed discussion about the wording of the questions, possible misunderstandings, ways of making questions less biased, and making demographic questions as inclusive and representative as possible. The resulting survey can be found in Appendix I.

The anonymous survey was administered on paper to three large enrolment first- and second-year undergraduate courses. Participation was voluntary but given that class time was offered to complete the survey, the response rate was very high. This gives us more confidence in the validity of the results by excluding possible self-selection biases (only people excited about social media responding), but we do not have enough data to determine how representative these three courses are of the general undergraduate population in history and religion.

Demographics

The survey consisted of 42 questions, responses to which were recorded on a five-point Likert scale. We collected 285 valid questionnaires from 84 male and 198 female respondents and analyzed the results using the R statistical programming language. Given the selection of courses, the majority of respondents were in their first or second year, but about one-quarter of the respondents were upper-year students. Two demographic findings of interest were identified with respect to commute times and student age. Only 48 respondents lived in residence and about half the students had commute times longer than half an hour (30% longer than 45 minutes). The fact that the University of Toronto, located in the downtown core of a large city, is known as a commuter university was one of the motivations behind this study – we wanted to support undergraduates in forming meaningful academic and social relationships despite the limited time spent socializing on campus.

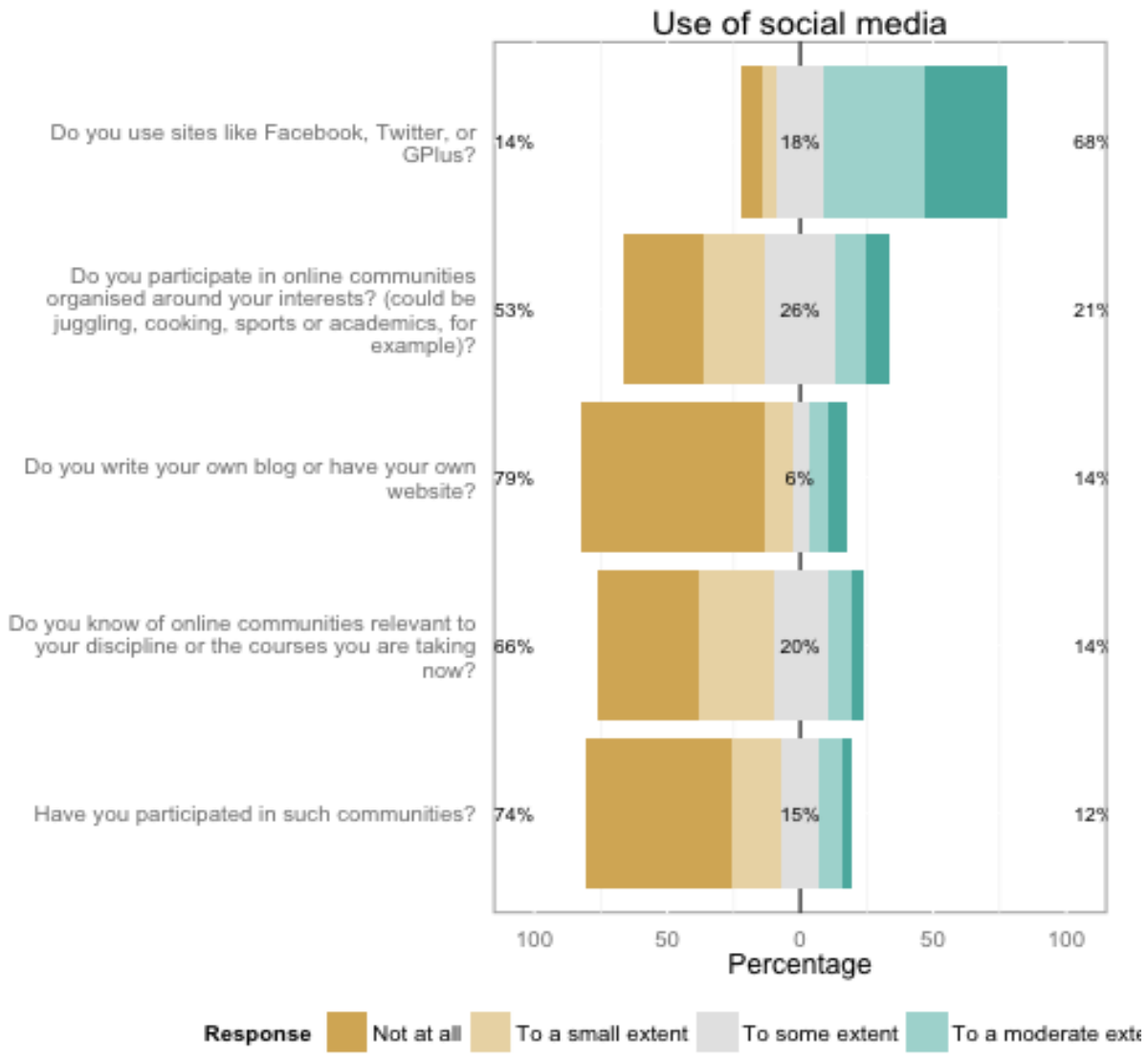
The second interesting demographic finding was the number of mature students. Fifty-eight per cent of respondents noted that they had left high school more than five years ago, and 34% more than 10 years ago. We do not have comparable numbers from across the institution to tell us whether this is a particularity of the departments of history and religion, but the number of mature students brings an important new dimension to the discussion. Older students are more likely to live away from campus, have families, jobs and existing social circles, making it often more difficult to connect with other students in the same discipline.

Use of Social Media

Educators often assume that undergraduate students are "digital natives" and adept at connecting with peers and expert-communities regardless of topic. However, as shown in Figure 1, few of our respondents reported accessing online communities related to their interests, maintaining their own web presence, or knowing of and participating in discipline-specific communities.

We had the opportunity to probe into this question during our focus groups and, somewhat to our surprise, we found a number of students not only unaware of the digital resources and communities available to them but also quite uninterested. We might have found different responses from students in the hard sciences or in technology-related subjects, but many of the students in history and religion preferred accessing books in the library and meaningful in-person discussions, and expressed deep skepticism of the value of online communities, which were seen as a frivolous way to connect with friends and share gossip.

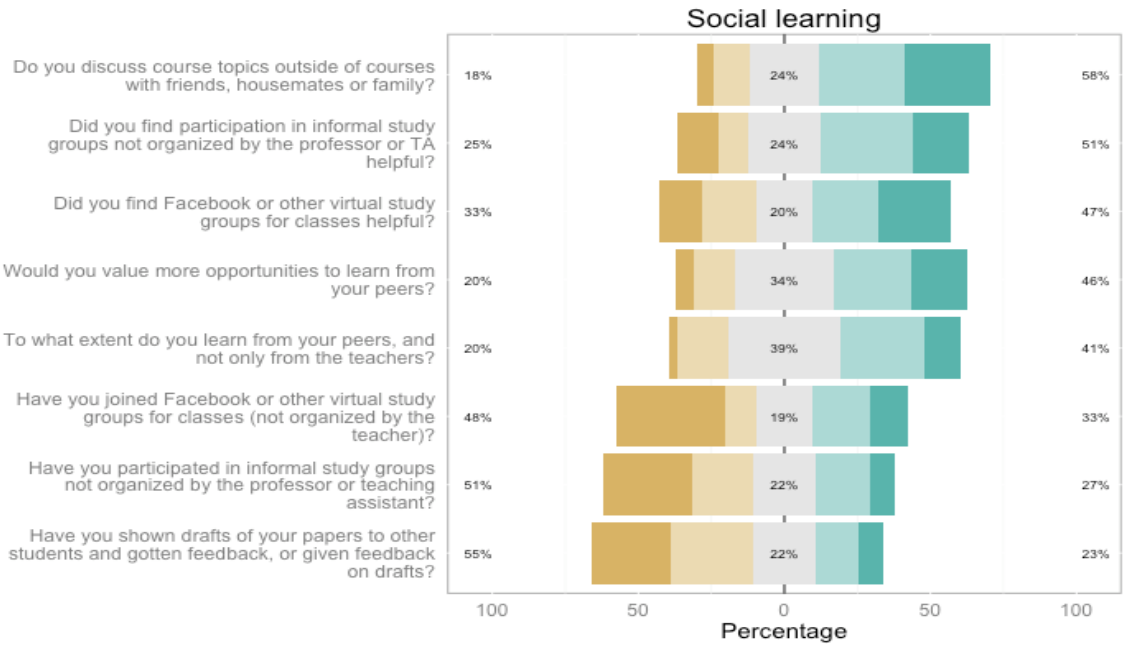
Figure 1: Use of Social Media



Social Learning

Given the project's focus on social and collaborative learning, and making students value the contributions and perspectives of other students, we were interested in the students' pre-existing beliefs and attitudes towards social learning. We were impressed by the number of students who discuss course topics with people in their existing social networks, and the students who participate in informal study groups in person or on Facebook seem to find them helpful – although few participate. A majority of students would value more opportunities to learn from their peers and a smaller majority believe that they learn from their peers as well as from their instructors. There are some demographic differences: female students are more likely than males to join virtual study groups (37% of female students and 23% of male students, significant with p=0.05) and find them helpful (50% of female students and 40% of male students, not significant with p=0.11), and students on residence are more likely than commuter students to share papers with others, probably because the physical proximity to other students makes it more convenient (29% of residence students and 21% of non-residence students, significant with p=0.02).

Figure 2: Social Learning

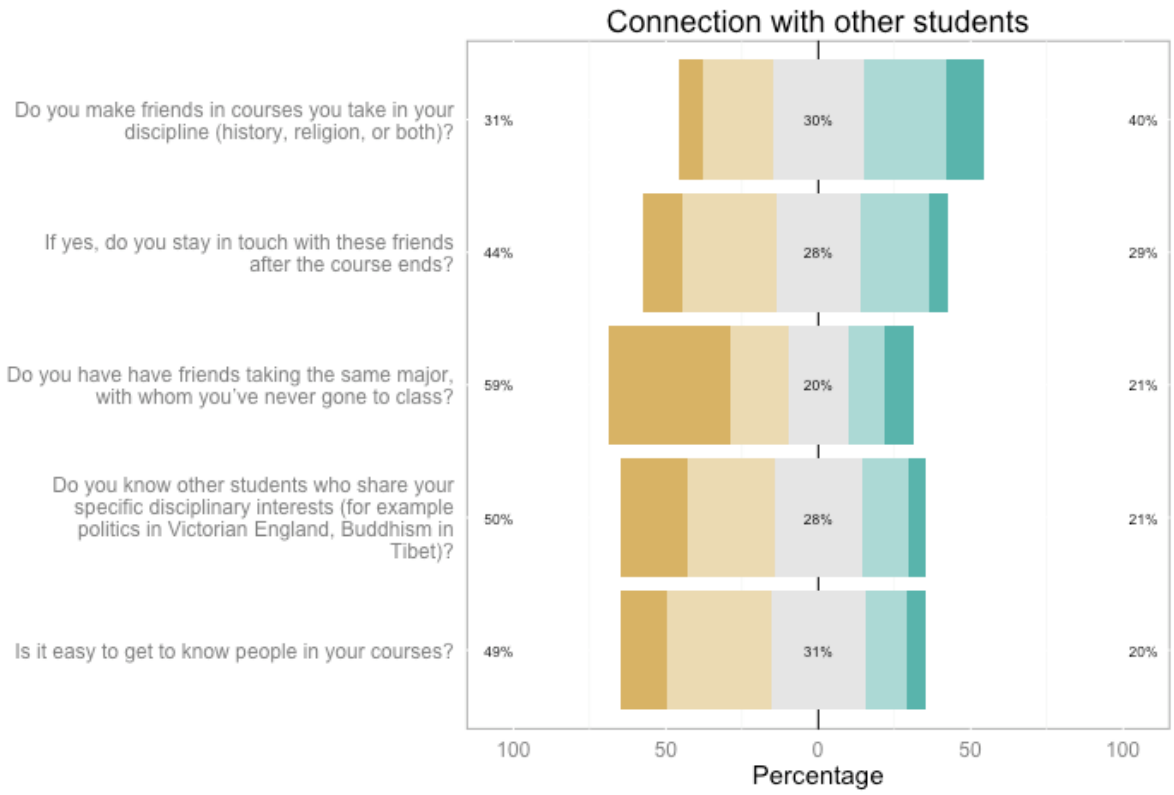


Connection with Other Students

One of the main goals of the project was to make it easier for students in lower years to find and connect with other students who share their interests, both in the same year and in higher years (who can serve as mentors and guides). The respondents from higher years were much more likely to know other students who share their disciplinary interests and found it somewhat easier to get to know people in their courses

(likely due to course being much smaller and more focused). The large number of students who do not find friends to share their disciplinary interests underlines the potential value of the current project.

Figure 3: Connection with Other Students



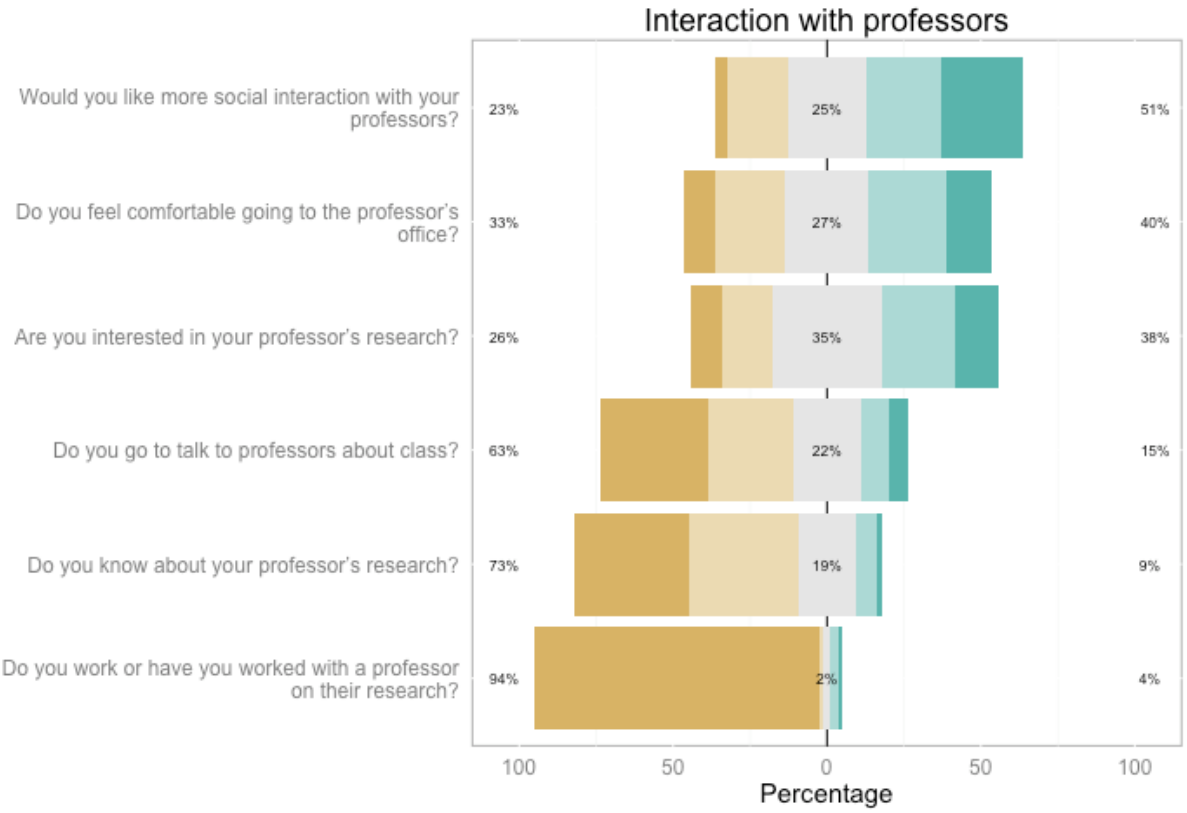
Interaction with Professors

In addition to students' relationships with other students, we were also interested in their relationships with their professors. The University of Toronto is known as a large research university; on the one hand, we have internationally renowned researchers and educators, but on the other hand, the undergraduate student body is very large and students might have difficulty getting access to or feel inhibited from contacting professors.

A majority of students would like more opportunities for social interaction with professors and are interested in learning more about their research. However, a very small proportion of students actually act on these interests – most students never go talk to professors about class, do not know about their research, and almost nobody has ever had an opportunity to work with professors on their research.

One interesting finding was that male students and students who left high school more than four years ago were more comfortable going to see professors in their offices. The same is true for upper-year students, and fourth-year students were the only category of respondents with a significant number of individuals working with professors on research. However, the interest in professors' research and in more interaction with them was consistent across all years.

Figure 4: Interaction with Professors

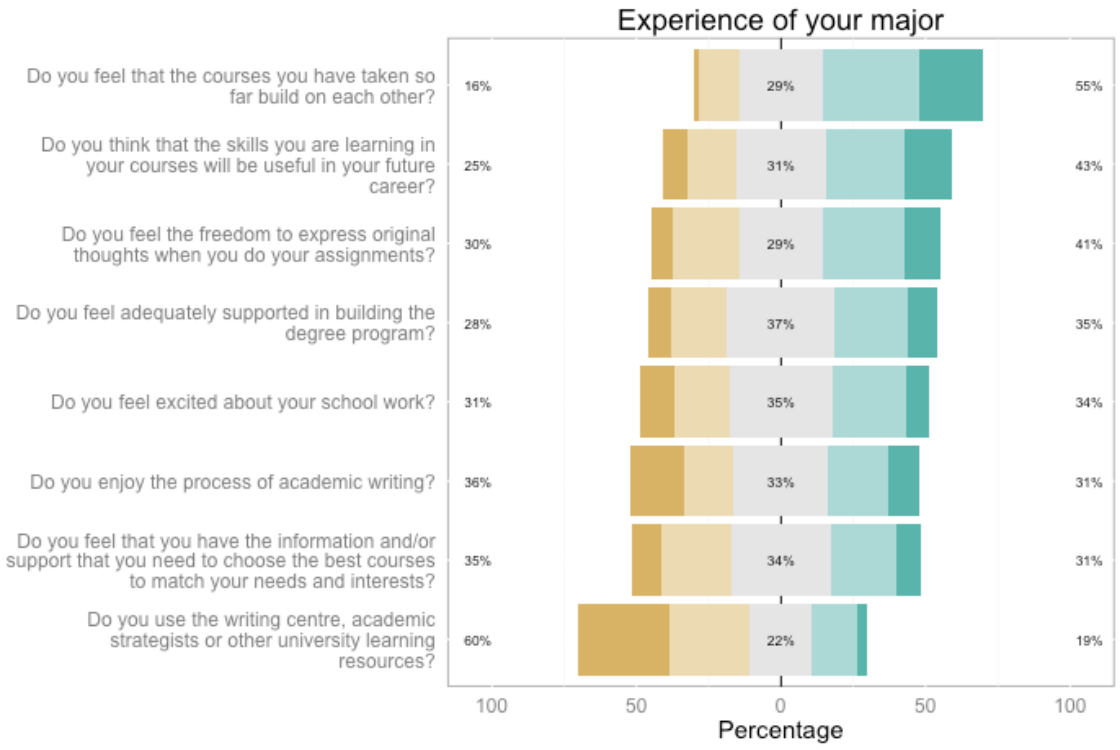


Experience of the Major

Students are generally satisfied with how courses build on each other and think that the skills they learn will be useful in a future career. Students were more ambivalent when asked about the level of support received from the department in shaping their overall course of study, the level of excitement around their school work and how much they enjoy the process of academic writing. Few students take advantage of the institutional support available (such as the writing centre and academic strategists). More male than female students feel free to express original thoughts during assignments (50% of male students, 37% of female students, significant with p=0.01), and students living in residence are more likely than commuter students to use institutional supports (30% of residence students, 17% of non-residence students, not significant with

p=0.07). Upper-year students are more likely to feel that their courses build on each other (63% of upper-year students and 52% of lower-year students, significant with p=0.02) and feel more supported in building their degree program (46% of upper-year students and 32% of lower-year students, significant at p=0.01). They are also more likely to feel that they have the information that they need to choose the best courses (38% of upper-year students and 29% of lower-year students, not significant with p=0.11). They are more excited about school work (43% of upper-year students and 30% of lower-year students, not significant with p=0.06) and more likely to enjoy the process of academic writing (42% of upper-year students and 27% of lower-year students, significant with p=0.01).

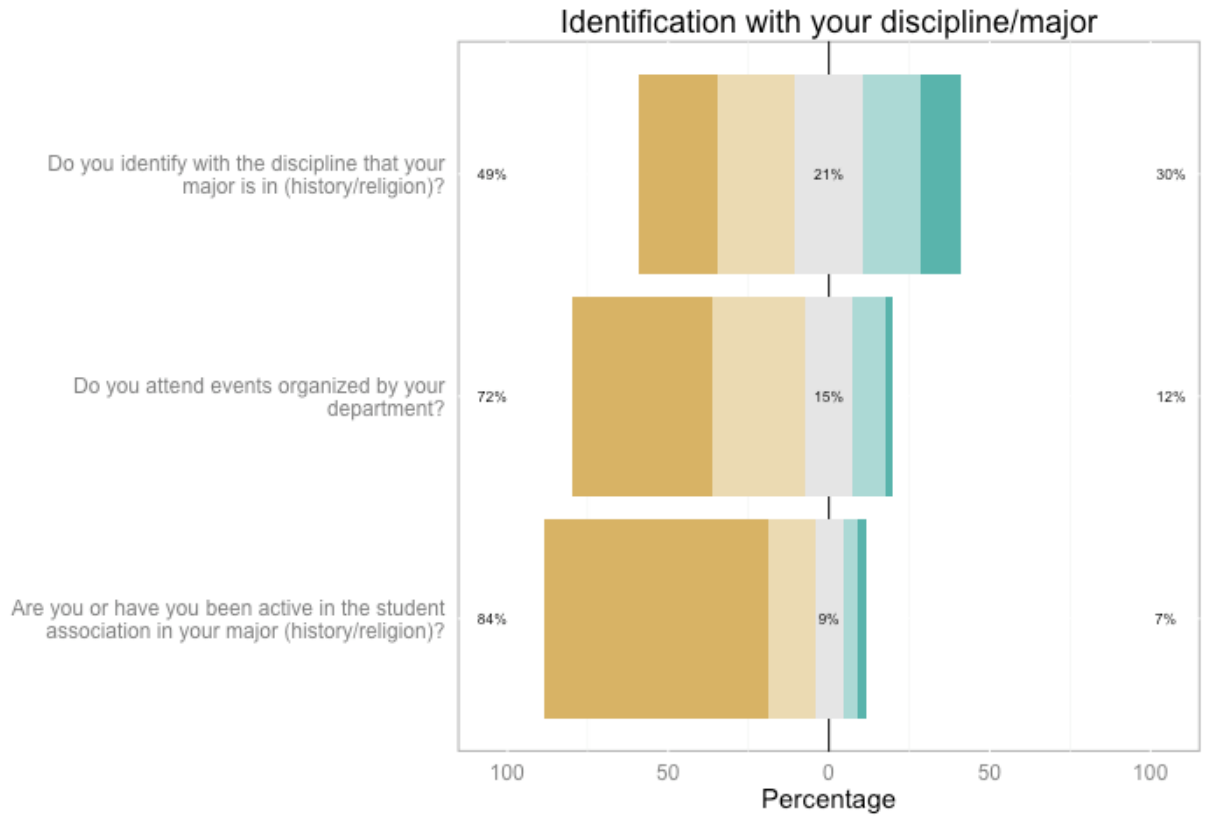
Figure 5: Experience of the Major



Connection to the Discipline

Students as a whole do not feel a strong connection to their discipline and are very unlikely to attend departmental events or be active in their disciplinary student association. Fourth-year students indicate higher agreement on all three questions.

Figure 6: Identification with your Discipline



Social Learners

We identified a number of demographic differences in the answers, as mentioned above. However, this study was grounded in the assumption that social interaction and peer learning within a discipline or a department would bring value to students. As a result, we were curious how students who answered “To a moderate extent” or “To a large extent” to the question “Do you learn from your peers, and not only from the teacher” (about 40% of the respondents) differed from the other students. We used this question to divide the students into two groups – those who did respond ‘To a moderate extent” or “To a large extent” to the question, and those who did not – and compared their responses on the other survey questions.

The group that valued social learning more highly had more positive responses on almost all items. They were somewhat more likely to use all forms of social media and they were more likely to participate in and value all forms of social learning. The data presented in Figure 7 show that social learners make more friends, are more likely to stay in touch with them and know more people who share their disciplinary interests. There is no apparent difference in their interaction with professors or experience with their major, but they are more likely to identify with their discipline (Figures 8 and 9).

This analysis is certainly exploratory and preliminary. In a future study, it would be interesting to explore the concept of "social learner" more deeply, and it is important to note that the relationships above do not necessarily imply causation. Changing people's perceptions on social learning will not necessarily lead to them finding friends with similar disciplinary interests; it might very well be the opposite – the more friends with disciplinary interests, the more opportunities to connect with like-minded students, the more likely students are to value social and peer learning.

Figure 7: Social Learning

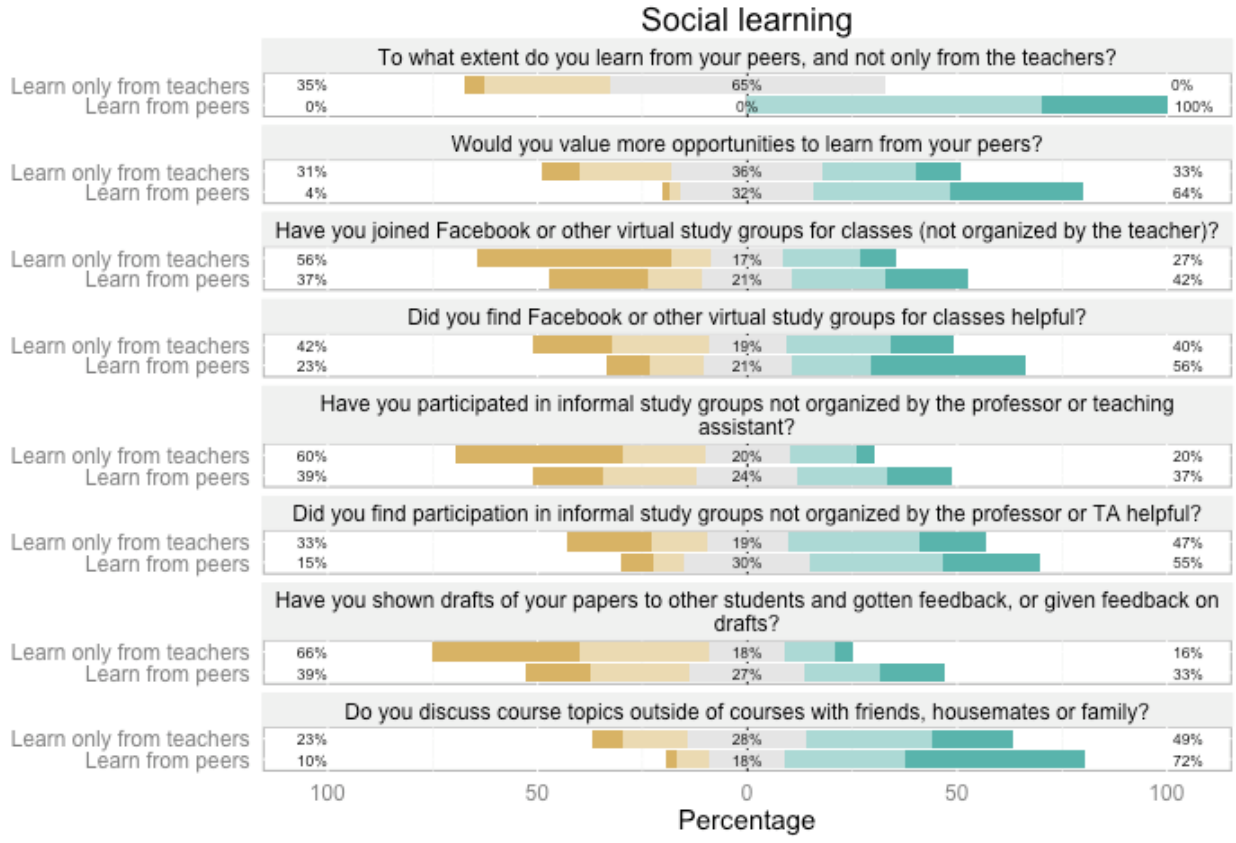


Figure 8: Connection with Other Students (Social Learning)

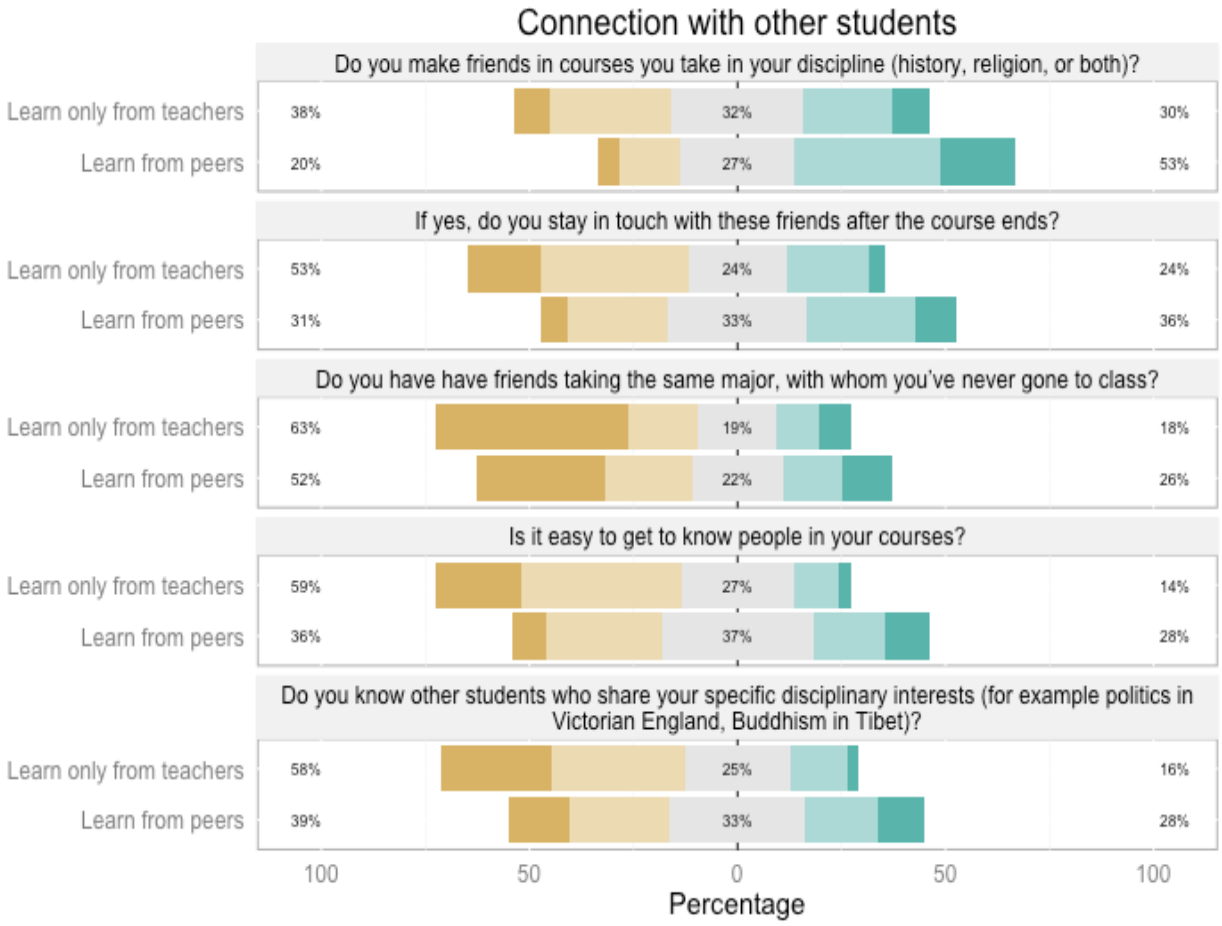
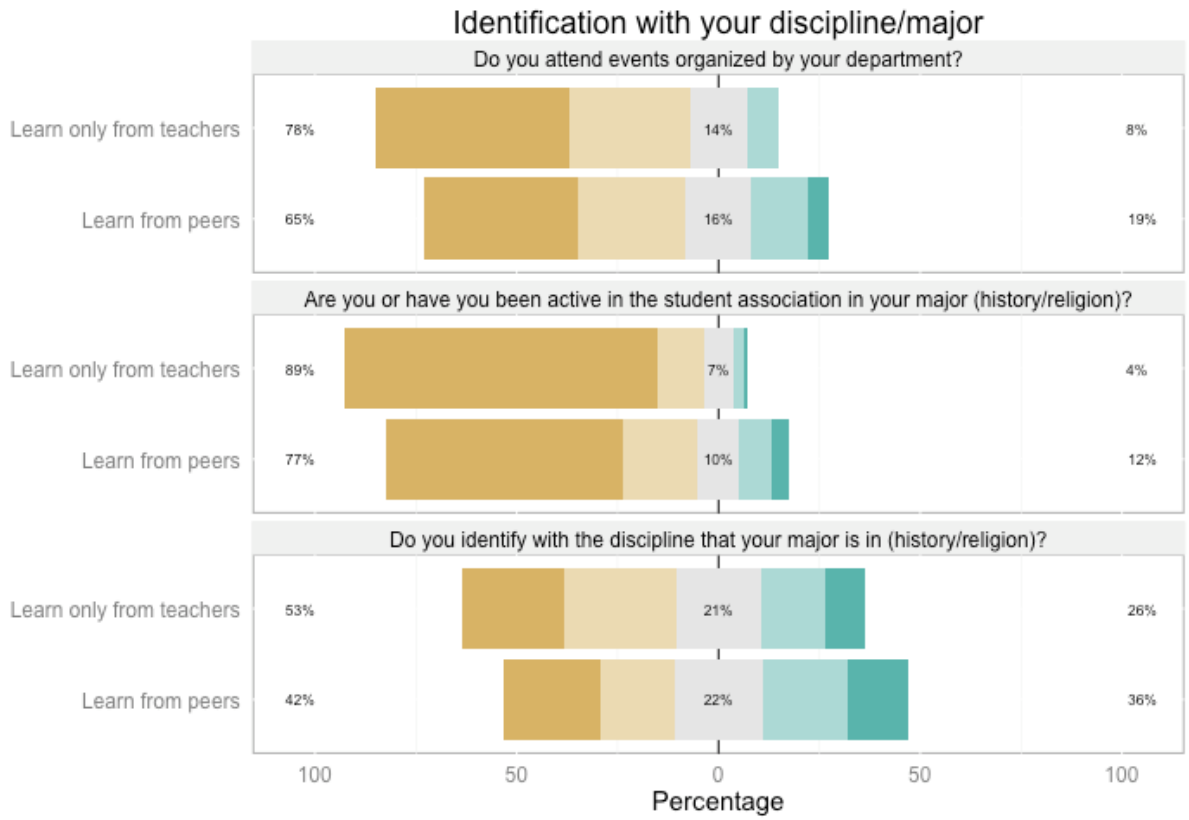


Figure 9: Identification with your Discipline (Social Learners)



Focus Groups

In addition to the questionnaire, which gave us a broad overview of attitudes and interests among the undergraduate population in the departments of history and religion, we wanted to understand the students' experiences and needs in greater qualitative detail. With this goal, we carried out two successful and highly informative focus group sessions with students, in which we tried to understand more about their current use of social media, both in relation to courses and in life outside university. We wanted to know how they came into the programs of study that they were following and what sources of information they rely on to put together courses into a program of study. Did they feel socially connected with like-minded students from their own years or with senior students who could advise? What role did faculty interactions, departmental events and informal communities play? And would they be interested in an academic social network focused on creating disciplinary connections, showcasing and critiquing academic work, and building an e-portfolio?

In discussing these issues with students, we found that Facebook usage is nearly ubiquitous and that some students use it to connect with other students in a course and exchange information. This can, however, be exclusionary – while some students told us about independent Facebook study groups set up for courses, other students in the same courses had never heard about these study groups and did not feel "invited."

There was also a sense that Facebook is distracting and not "serious." Several students expressed doubt that substantial academic discourse could happen on the Internet at all and strongly prefer printed materials (books), studying in the library and discussing with others in person. There was a similar split surrounding the students' perspective on disciplinary (department-based) student organizations (History Students Association, Religion Students Association): some students had good connections with fourth-year students through these organizations, while others felt that the organizations could feel exclusionary and non-inviting, especially to lower-year students. One peer-produced resource that was frequently mentioned was the "Anti-calendar", a compilation of student evaluation comments from previous years published by the university's Arts and Science Student Union, which students used to identify courses to take.

Several participants expressed lacking of sense of "community" in the history department. They saw it as too large, with many undergraduate students who are not even very interested in the discipline, making it difficult to connect with others who are passionate about the subject of study. One recommendation was for us to focus our efforts on the students who are most enthusiastic, rather than trying to encompass everyone in history and religion.

When we introduced the idea of an academic social network for their departments, students were cautiously interested. A frequent concern was whether students would remember or bother to visit the site without being compelled. The advantage with Facebook communities, we were told, is that students visit Facebook every day anyway and they also get frequent e-mail notifications about new items posted. An academic social networking website would need to contain something very compelling for the students to visit it frequently – currently they rarely visit the student association website and prefer to get updates through Facebook. Items that were seen as compelling would be events/calendars, regular involvement by professors (or graduate students and teaching assistants) posting thoughts, and perhaps a database of academic resources.

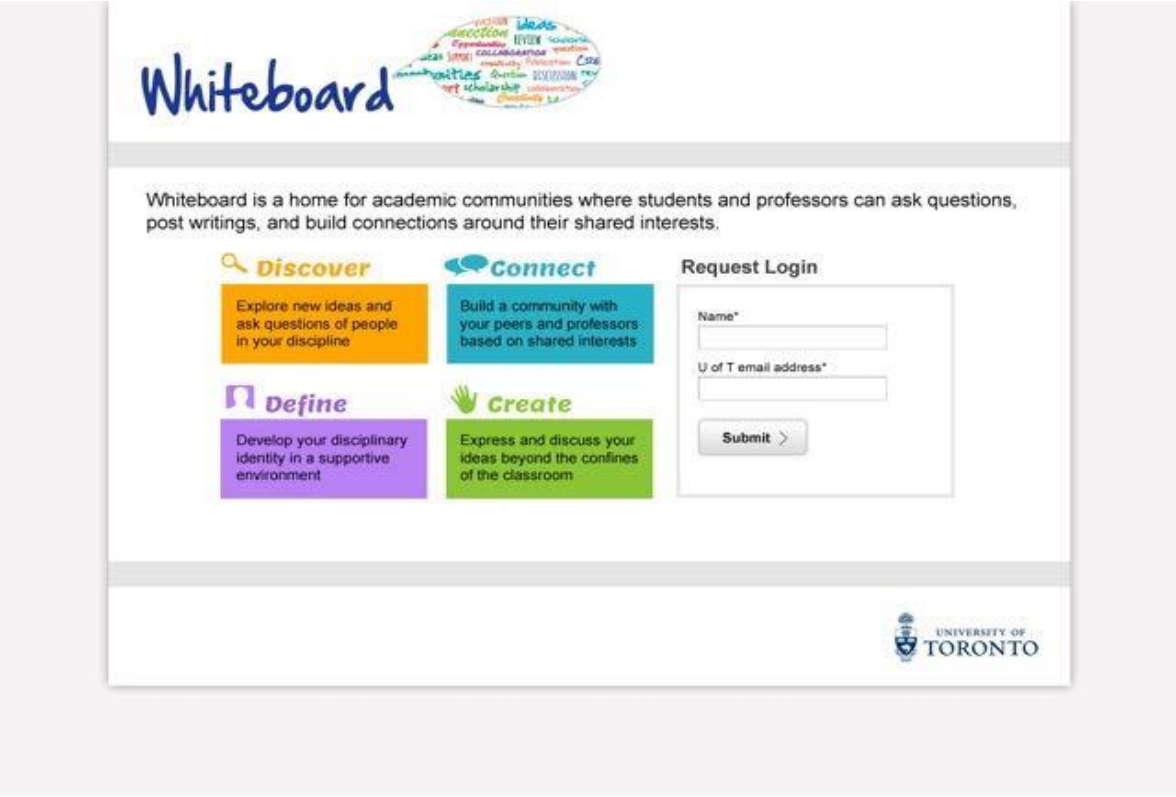
Another noteworthy finding was students' interest in continuing conversations after a course ends. Certain courses might involve student interaction leading to the building of a course community, gathering of resources and generating common artefacts, but these were often hosted on sites such as Blackboard, which are made unavailable to students after the end of a course. The idea of how to sustain such course-generated communities beyond the final exam and even to connect these communities across courses was mentioned as appealing by several participants.

Web Design Process

The principal investigators and the research assistant all had experience with various groupware, social network and collaborative website systems. We considered a number of options and decided that building the system on top of Drupal would enable us to customize the functionality that we were concerned with, while leveraging the existing social network and content authoring functionality. This also allowed us to leverage existing institutional capacity and know-how, since University of Toronto hosts a number of Drupal sites, including the DISC digital scholarship website supported by Matt Price and Frances Garrett, and educational experimental sites supported by e-learning consultant Jim Slotta and his lab.

Our web designer, Naxin Zhao, has experience customizing educational Drupal websites from Jim Slotta's ENCORE lab and worked with us to manage the technical infrastructure. The group met regularly with undergraduate work-study students to co-design the functionality and user interface of the site, which was named "Whiteboard." The development of this software was funded by a grant by a University of Toronto ITIF grant to Garrett and Price but is described in this report because it is the basis of the HEQCO research study.

Figure 10: Whiteboard Login Page



Planned and Implemented Functionality

Students would log onto the site using their University of Toronto credentials and fill out a simple profile that included questions about courses they had taken in the past and disciplinary interests using a controlled vocabulary.

In addition to standard friending/following functionality found on many social networks, students were able to search for students and content based on tags from the controlled vocabulary, as well as course codes. The goal for this latter feature was not only to enable current students from the same course to find each other, but also for course communities to persist beyond the completion of a course and enable the interaction between students from different generations of the same course.

Figure 11: Whiteboard Dashboard

The two main content types available were posts and questions. The posts were similar to blog posts, with a rich text editor that enabled easy inclusion of images and rich media, and the possibility for readers to comment. The question and answer section was meant for quick questions that could stimulate interesting discussions, whether these be about logistics and course selection, locating appropriate resources, or more substantial discipline-related questions. There was also a space for events and calendars for members to share interesting events relevant to the community.

Challenges and Possibilities with Developing Our Own Site

We knew from the outset that competing with Facebook and other popular social networks would be a challenge. There were important advantages of hosting our own portal:

- Being located on the utoronto.ca domain adds credibility and seriousness
- Some students might be more comfortable posting on a portal that is only open to University of Toronto students under their actual names than on a public social network
- Integrating with the University of Toronto login that every student already has made signup much faster and obviated the need to remember a new username and password

However, there were also many challenges encountered in the process:

- Websites like Facebook have large teams of designers and user-interface engineers who optimize the look and interaction of the site. This has shaped people's expectations and, even with a lot of configuration, Drupal still seemed clunky and difficult to use.
- The design and development of the portal took much more time than planned and the result was still only barely usable. We had very ambitious ideas and goals, but would have needed a much larger budget and dedicated developers to realize our vision.
- Unless the site is embedded into course curricula, it is very difficult to change students' habits, to make them regularly actively log in and check or contribute to the site.
- Social network sites always rely on the network effect, which means that it can be very difficult to get a site "off the ground." If users log in, see that their friends are not registered and there is not much activity, they are not likely to come back or spend the effort to contribute content.

Student Recruitment and Bootstrapping

We were very aware of the last issue and the challenge of bootstrapping a site. We had a three-pronged approach to overcoming this. The first was hiring a number of work-study students who were undergraduate students in history and religion, exactly the target group for the website. In addition to providing invaluable feedback on web design and questionnaire design, and exhaustively testing the functionality of the site as it developed, they also began populating the site with content, including articles relevant to their own courses or interests and model questions.

The second strategy was to approach instructors in the history and religion departments to see if they would be willing to integrate use of the website into their curricula; several professors agreed to do this. This was particularly appropriate for courses that already included an online contribution component, such as public blogging. The hope was that this would not only help kick-start the community by providing a source of high-quality thoughtful content, but also help introduce new members to the existence and use of the website.

The third strategy was a public outreach campaign to inform students about the site. We printed small cards with the site logo, URL and a brief explanation of the project, which were distributed. A number of the work-study students showed up in history and religion courses and gave brief public presentations about the site, and we also had a public launch party for the site, with food and entertainment, all organized by the student fellows group.

Site Usage

Despite the significant efforts of the research team, the site never saw sustained independent activity. In total, 237 users signed up and of these 113 actively posted content to the site. In total, 267 articles with 66 comments, 57 events and 21 answers were posted. This represents not an insignificant amount of usage, but a large proportion of the posts were generated by the group of student fellows that supported the project, or specifically elicited from students as part of a promotion. The significance of this core group of early contributors can also be seen below in a discussion of the small social network that arose on the site.

Friending Functionality

As part of the website functionality, a user could “friend” another user to follow their updates and activities. This functionality is similar to “following” on Twitter and “friending” on Facebook. The functionality was not used very actively: only 12 users were involved in following or being followed. In the graph below, admins (the two professors leading the project and research/development personnel) are coloured red. The person with the most followers is one of the lead professors, but we can see that this group is fairly well connected. All of the connected nodes represent students who were part of the initial group of work-study students, who had an incentive to explore website functionality and connect with others in the same group.

There could be several reasons why the “friending” functionality did not find more usage among students joining the website later. It is possible that the website failed to achieve a “critical mass” of users, leading to students not being able to find their existing friends online. Perhaps students were not active on the website long enough to form new online relationships with students that they did not know outside of the website. Finally, it is possible that the amount of new material created on the website never reached a level at which students felt a need to filter the feed, and that the students preferred to read the unfiltered front page instead of restricting it to the output of specific users.

Figure 12: Social Network Graph of Students on Whiteboard

Conclusion and Discussion

The project's initial assumptions were that undergraduate students at one of Canada's highest enrolment universities have difficulties connecting with other students, particularly students who share their specific disciplinary interests. Students might have problems understanding the logic of their program of study and selecting the most appropriate courses, with few opportunities to get to know upper-year students who can guide them on their way. Enrolled in very large lecture courses for the first two years of their studies, students have few opportunities to interact with their professors or to form strong connections with their department and their discipline.

Given this assumption, and the literature surrounding the potentially positive role that social networks and e-portfolios could play in helping students gain a strong disciplinary identity and making the learning that happens in courses feel more meaningful, but also aware of the challenges that students face on public

social networks, we decided to experiment with the creation of a private university-hosted site specifically designed for the kind of deep disciplinary engagement that we hoped would benefit students.

Our initial assumptions regarding student needs were to a large extent reaffirmed through our questionnaire and focus group interviews, which also brought interesting findings challenging the notion of the digital native – students are avid Facebook-users, but wholly unaware of the rich disciplinary resources and communities that exist digitally. We found a strong relationship between a positive attitude to learning from peers and almost every other measure on our questionnaire – determining whether the relationship is causal, however, would require further research. Finally, we began to understand more about the dilemma between being present where the students already are (on Facebook) or constructing a new and separate site. The researchers, who have all benefited immensely from their digital peer networks, also found surprising the number of students who did not believe that the Internet was a fruitful venue whether for research or deep engagement around ideas. This could be related to the specific disciplines we targeted (history and religion) and the students attracted by these disciplines.

When writing a final report or an academic paper, it is always tempting to attempt to portray the experiments in as positive a light as possible and to twist the narrative in a way that it can be portrayed as successful. However, the truth is that despite our positive initial findings, our main experiment failed. The development of the site turned out to be much more technically demanding and to require far more time and energy from the primary investigators for specifying functionality and designing user interfaces than expected. However, in the end we were still left with something far inferior to Facebook and other popular social networks when it comes to slickness and ease of use. Despite heroic efforts by our student fellows to boot-strap the site with very high-quality and engaging content, and to recruit students to participate in the community, the site was never able to reach a sustainable level of activity.

We still believe in the original vision of this project and have gained a much better understanding of the needs and beliefs of undergraduate students. We know that some social-academic networks have succeeded, but they are often ones where participation is a requirement of certain courses. Further research could investigate in more detail the factors that lead students to visit external sites regularly, and the minimal size and activity of a community needed to sustain an active site. We therefore make the following recommendations for colleagues considering a similar intervention.

A careful assessment of the design and costs should be undertaken with an understanding that students come to social media with very high expectations for the technical sophistication of platforms. We are no longer in an era where a relatively simple platform can attract and hold student attention in the way that is necessary for the kinds of goals expressed in this project. Project designers should be aware that a high level of funding will likely be required to develop a custom software solution, and that existing social media solutions may in fact meet a project's needs more efficiently and effectively.

We also suggest that while social media may be an appropriate method of addressing some aspects of the problems articulated by this project, we feel that a social media solution should be part of a larger community-building initiative. A social media digital project is less likely to succeed if it is not affiliated with

other networking and support methods, such as clubs or student associations, awards ceremonies or other kinds of academically oriented social events.

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