2-2014

Curricular Integration of Technology by the Coates Library, 2008-2013: A Report of the Activities of the Faculty Technology Liaison

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By Jeremy Donald

Introduction

The Faculty Technology Liaison (FTL) position was created to support *Expanding Horizons: Information Literacy in the 21st Century, a Quality Enhancement Plan* instituted at Trinity University in the fall of 2008. The position was intended to promote information literacy and technology use by providing technology-intensive teaching and learning opportunities for faculty and students.

Philosophy

Trinity University's *Expanding Horizons: Information Literacy in the 21st Century Quality Enhancement Plan* (QEP) asserts that student information literacy is best achieved by integrating information literacy goals and instruction into the curriculum at the course level, for both new and existing courses. This is in contrast to the approach of offering stand-alone information literacy courses or labs taught by librarians. Faculty and librarians worked together to create research-rich assignments that both embraced and moved beyond the conventional research paper, with an emphasis on five information literacy outcomes: understanding the varieties of information sources, accessing information, evaluating information, using information ethically, and creating new information. By redesigning courses and assignments to both emphasize and demystify the uses of information in a particular mode of inquiry, faculty and librarians sought to improve the information literacy of students while improving the quality of their coursework.

The Faculty Technology Liaison likewise sought to integrate technology into the curriculum by creating opportunities for students to use technology in an information-literate way in their coursework. This was done by working with faculty to create or modify assignments so as to have students learn and apply technology in the service of course learning goals. It was important to the FTL and the library leadership to emphasize the inter-relatedness of information literacy and technology skills. Ideally, students would use technology to both consume and produce information, and would have ample opportunities to apply and experiment with technology as developing practitioners of various disciplinary modes of inquiry.

In addition to developing course-specific assignment designs through consultation with faculty, the FTL provided classroom instruction, documentation, and ad-hoc support for the technology and learning design selected for a given course. The intention was to place the burden of teaching students technology applications on the FTL rather that upon faculty instructors, who often have considerable

time constraints. The collaboration between faculty members and the FTL was meant to streamline the implementation of student-centered, outcome-focused, and technology-rich learning experiences. This approach to promoting curricular integration of technology was conscientiously chosen over a prevalent alternative, that of targeting faculty directly for technology instruction on the assumption that they would then utilize technology for the delivery of instruction ("teach with technology") and create opportunities for their students to use technology to complete activities and assignments ("learn with technology").

The primary goal of the position was to encourage and support faculty in creating and implementing technology-rich assignments that served course learning goals (including, but not limited to, information literacy goals). The Faculty Technology Liaison focused on the support and facilitation of student use of technology to perform inquiry, analysis and information creation in various domains and media. Support of faculty use of technology in the service of faculty lectures, presentations, demonstrations, and dissemination of materials and course content was de-emphasized as a mission of the position (another position on campus, Instructional Support Manager, addressed these outcomes).

The FTL addressed the primary position goal via the following methods:

- Consultation with faculty on the creation or modification of assignments to create learning activities that asked students to apply technology in the creation of their work, and always in the service of explicit course learning goals.
- Evaluation and selection of technologies appropriate to the explicit learning goals of the assignment and the skill levels of the students. Wherever possible, technologies with potential critical-thinking and problem-solving applications in relevant disciplinary contexts beyond the requirements of the course were favored.
- Design and development of active learning instruction sessions (including classroom instruction plans, pre- and post-instruction learning and assessment activities and assignments) and supporting materials (e.g., screencasts, LibGuides, written instructions, visual guides, examples of completed work).
- In-class instruction, including supervision of hands-on experimentation, facilitation and provision of peer and instructor feedback, and assessment of completed exercises.

It is important to note that exposing students to particular technology tools and procedural skills was deliberately avoided as a goal or outcome per se, but was instead achieved as an artifact of placing critical thinking skills and disciplinary methodologies at the center of technology applications. Emphasizing particular tools and procedural technology skills is often necessary to achieve learning outcomes, but was rarely—if ever--pursued as an end in itself. Every effort was made to align the use of technology with the goals of the University's curriculum at the level of courses and assignments.

As an example, if a professor wanted students to learn about narratology by creating short media projects analyzing the narrative structure of a literary work, the role of the FTL was to consult with the faculty member to create an instructional design that incorporated and reinforced the goal of understanding narratology. This move places technology in the service of the goal, rather than using the

narratology lesson as an excuse to teach technology. While the difference in these two approaches may appear subtle or inconsequential, they are vastly different in terms of instructional priorities. When course goals drive the application of technology, the instructional technologist and the faculty member share the same priority: the achievement of course learning goals, rather than the mastery of the interface of a given technology. Students, who struggle to understand and manage the nature, goals, and challenges of assignments in the best of circumstances, are not well served by mixed messages regarding where they should invest their time and attention. This is particularly true when involving technology, which presents an additional layer of novelty and challenge. However, when students are presented with clear priorities regarding learning goals, in tandem with a well-considered assignment design, technology can provide students with a powerfully engaging and active experience of creating information in novel ways, one which emphasizes course learning goals rather than distracts from them.

Promotion of Services

All faculty were invited to apply for information literacy-specific course development grants, which provided incentive for including information literacy goals in one's new or existing course. The grant application process included opportunities for consultation with the FTL, and the grant award criteria made it possible for information literacy-specific applications of technology to receive funding, providing one avenue for the FTL to collaborate with faculty on course design and implementation.

Additionally, the FTL sought opportunities for collaboration through other means, including programming and/or participating in faculty-focused events, direct engagement with faculty with promising courses or an interest in technology application opportunities, and being open to serendipitous conversations. Given the small and relatively informal nature of faculty relations on campus, numerous opportunities for cultivating collaborations were available. Methods of engagement included:

- Annual information literacy workshops for Trinity faculty
- Lunchtime Technology Workshops
- Office visits, attendance at departmental meeting
- Referrals (from faculty, librarians, CLT staff, and students)
- Chance encounters

Instructional Design

In working with faculty to develop and support technology-intensive assignments, several principles of instructional design were applied, to wit: assignments, activities, and exercises were all treated as learning designs, with learning outcomes identified first in the design process, followed by ideas for what might constitute deliverables/evidence of learning. Following this was the creation of criteria for assessing the success of the assignment, the brainstorming of activities, projects, practices, or procedures that would facilitate the above, and an initial articulation of grading criteria. After further reflection and discussion, faculty members and the FTL ranked ideas and suggestions in terms of fidelity to course goals and practicality of implementation, and mutual decisions were reached which allowed for the evaluation and selection (and sometimes creation) of specific technology products and

applications. The result of this process was usually a schema articulating learning goals, technology applications, student deliverables, and assessment and grading criteria.

The faculty member and the FLT would then choose a date (or dates) and location for technology instruction, and the FTL would plan a hands-on instruction session and create supporting materials. Often the FTL would attend class the day the assignment was first introduced (usually early in the semester) to make an informal introduction and to familiarize students with the kinds of support the FTL would provide. This was done to minimize any anxiety students may have had regarding their own technology skills and/or the instructor's expectations and grading criteria for a novel assignment.

This approach meant that the design of the assignment/activity/exercise would have built-in opportunities for students to revisit grading criteria (e.g., an assignment grading rubric) and to get help as they polished their work. The ideal learning design was one where:

- the application of technology forced students to think through and apply the ideas, key constructs, and signature methods of inquiry of the course as they worked;

- the grading criteria reflected--first and foremost -- the goals and/or learning outcomes native to the course;

- students used the assigned technology effectively to both consume and create information.

Outcomes:

What follows are a number of attempts to assess the efforts of the Faculty Technology Liaison. Since the primary goal of the position was to improve student learning via the curricular integration of technology applications in service of course learning goals, students' graded work would serve as the most telling evidence of the success of the position. In lieu of that data, the figures below reflect the output of consultation, design, instruction, and bespoke support rather than the impact on student learning.

Instruction sessions:

This figure counts the number of technology instruction modules provided by the FTL, by department. Here the term module is used to refer to one or more instruction sessions offered for a single assignment. Instruction sessions were in this case always tied to a technology based assignment and/or activity. Instances where multiple sections of the same course occurred in the same semester were counted as one module. This is intended to reflect how often targeted technology design and instruction were integrated into specific syllabi, which often change from semester to semester, but which are usually identical for multiple sections in the same semester. There were 89 total modules that fit this definition during fall 2008-spring 2013.

Instruction by Department/Subject
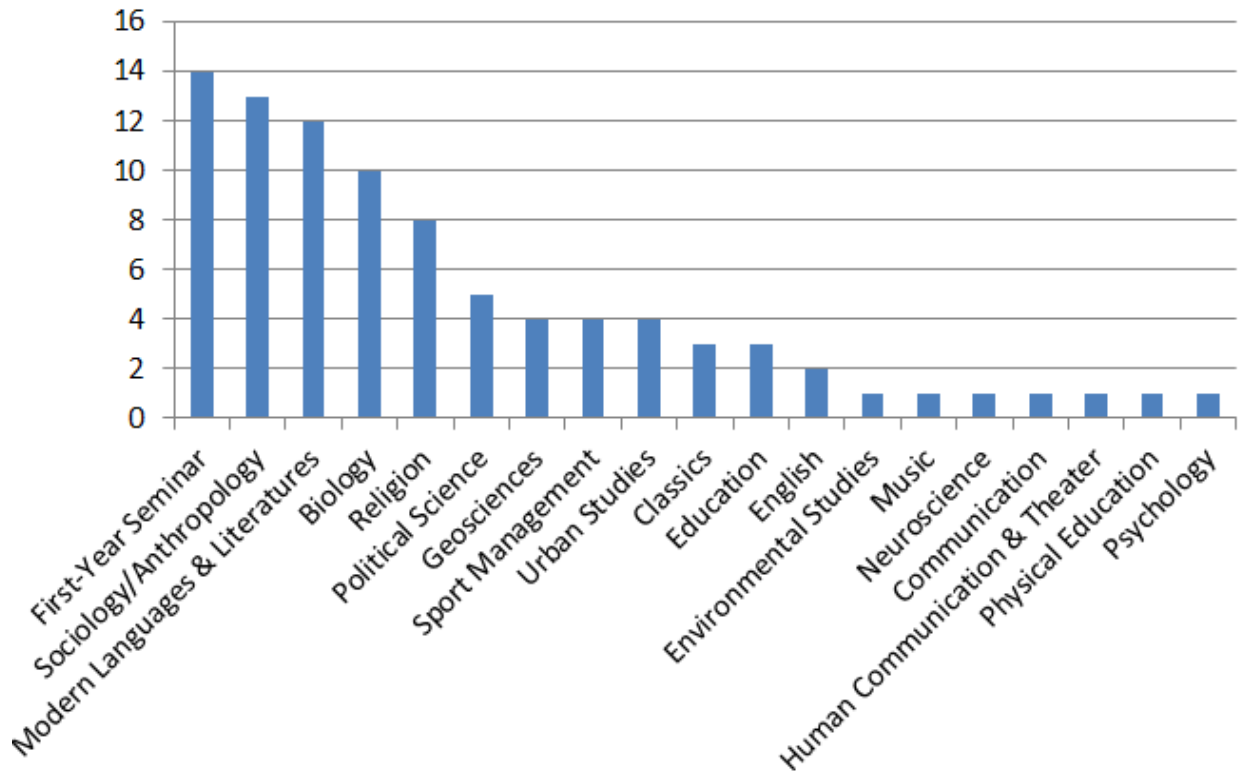
Modules by Semester:
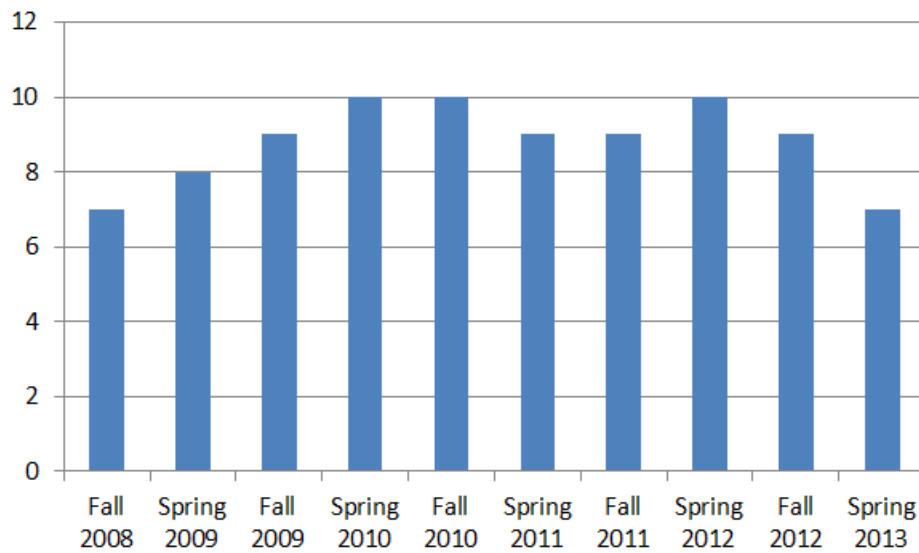
For a complete list of all the courses involving the FTL, and for an inventory of the technologies employed by students and the learning goals associated with them, please see Part II and Part III of the Appendix.

Case Studies:

Course: GEOS 4301: Senior Seminar: Land Use

Description:

This course asks students to work in groups to produce a land use analysis and recommendation for a current land use development proposal, making contact with stakeholders and presenting an analysis of land use issues intended to be of benefit to both stakeholders and to the general public. Students make extensive use of legal and regulatory information, extant media coverage, public and private spatial data, consultant reports, and direct communications with various stakeholders.

Role of the Faculty Technology Liaison:

The FTL, at the invitation of the instructor, collaborated with the instructor on the design of the information and data discovery and analysis components of the course design, and provided instruction and consultation to students throughout the semester, both in the classroom for formal information literacy and technology instruction, and by appointment, email, and phone for group-specific data discovery and analysis support. The FTL also worked with a library liaison for Geosciences who co-provided information literacy instruction.

Learning Design:

Students first complete a media scan on their site/land use project in order to develop a dossier of background information. This involves working with a librarian to learn how to search full-text newspaper databases as well as online news sources for coverage of their project. The dossier ultimately includes a historical timeline, a list of stakeholders (individuals, companies, public agencies, citizen groups, non-profit organizations), and a list of key documents referenced in the media coverage (environmental impact reports, feasibility studies, pertinent legislation and regulations, etc.).

Students then work with library staff to determine access strategies for these documents. Often, students are placed in direct contact with city and county offices when possible to provide students with authentic information literacy experience and to aid them in building relationships with government offices and other stakeholder organizations.

Students then create a spatial basemap (using ESRI's ArcGIS Desktop software) including elevation, major features, and, if relevant, demographics and socio-economic data. Each group then composes a list of spatial data desiderata relevant to their project. This list can include things like oil and gas well lease locations; utility infrastructure data; hydrology; soil composition; land cover and other environmental data. Students work with the FTL to discover data files, again serving as the point of contact with data providers whenever possible (data costs are absorbed by the library). Group members then consult with the FTL as needed to plan and execute spatial analyses, data processing, and visualization at both the conceptual and procedural levels in order to provide spatial context for their project report and presentation.

Instructor's Comments: In term-long projects such as those undertaken by students in GEOS 4301, the ability to access and critically analyze data from a range of sources is crucial to ensuring success. In addition, the ability to analyze spatial data using ArcGIS software provides additional information that students are required to apply and integrate within their projects. The FTL provided a structured and effective learning environment in the classroom on the days that students were introduced to new information-literacy-related concepts, and the FTL was available to both students and instructor throughout the term in order to address challenges related to information access. The skills gained throughout these experiences have clearly served students well in their lives beyond Trinity, based on feedback received by the instructor.

Course: FREN 4307: French Cinema

Description: This course involved a semester-long, multipart assignment that began with students choosing a film in the second week of class. The first part of the assignment involved students selecting a clip from their chosen film and analyzing the clip for elements of mise-en-scène and montage, writing a 3-4 page essay detailing their analysis and tying the clip's significance to the film as a whole. Next they worked with a liaison librarian to discover film scholarship and reviews specific to their film and director using library databases and the library catalog. Students then created a 3-5 page evaluative annotated bibliography of five key sources. Lastly, students created a 10-minute video presentation in which various representative clips from their chosen film are analyzed and a thesis presented about the visual style of the director. Criteria for evaluation of the video project include the following: The video should serve as an introduction to the film and its significance to an audience that is unfamiliar with it, integrating scholarship, original insight, and visual evidence, and must consist of at least 75% voice-over narration. Sources must be cited, and comparisons made to one other film by the same director.

Role of the Faculty Technology Liaison: The FTL provided design consultation and classroom instruction for the media portion of this multipart assignment. For this portion, students were asked to select clips from films by the same director and to use iMovie (or the video editing software of their choice) to provide analysis of the visual elements of clips. Students were to use voice-over commentary, still frames, and title screens, interwoven with the clips themselves, to provide analytical commentary, context, and citations.

Learning Design: The focus of the media assignment was to focus student attention on the visual aspects of the films. They were asked not only to see the film differently as visual consumers, but to engage in dialogue with the critical literature of the films and the director, and to provide scholarly context for their claims.

The media assignment required them to create their own film clips as digital files, using software to make selections from DVD or VHS formats. They then had to insert these clips into a project timeline in iMovie (students who had experience with a different video editing tool were encouraged to use what they preferred) and learn how to do basic operations such as adding title screens, transitions, still frames, photos, and voiceover.

Due to the novel nature of the media assignment, the instructor and FTL thought it best to have a preliminary, "work-in-progress" meeting with each student, in order to verify that basic technology skills and project requirements were in place, and that students understood the goals and criteria for the assignment. Since most students were accustomed to writing a paper rather than composing a script to accompany a reel of clips and then reading it aloud into a microphone, this meeting presented an opportunity to not only resolve students' technical questions but also to listen supportively to their complaints and concerns, and to help them adjust their expectations of the assignment.

Instructor's Comments: Technological support is crucial to our students' success in undertaking a project which is radically new to them. No one has ever asked them to make a video in which they are to introduce and analyze a film while integrating scholarship. Not only does the assignment require skills they are used to deploying in papers, but to integrate visual analysis, creativity, and substantial technological skill.

Appendix

PART1: Technology Liaison Job Description

From Expanding Horizons: Using Information in the 21st Century, http://www.trinity.edu/departments/academic_affairs/qep/ExpandingHorizonsQEPpublic.pdf

Description:

The faculty technology liaisons support faculty use of instructional technology (software and hardware) for teaching. This position develops partnerships with faculty in teaching departments and in the library and is a specialist in selected software applications. He or she will serve as a consultant, teacher, and colleague on special projects and long-term course development related to the implementation of the Information Literacy Quality Enhancement Plan. This position collaborates with the Information Literacy Committee, the information literacy librarians, and the librarian liaisons to departments to design workshops and teaching sessions for faculty and to encourage and support advancements in teaching as it relates to the goals of the Information Literacy QEP.

Essential Job Functions:

• Stays abreast of best practices in instructional design theories and applications as they relate to college teaching.

• Ensures that Faculty are aware of pedagogical applications of technology and that uses of technology are supported properly through consulting services and training.

• Works with library faculty to develop appropriate tools to support the implementation of the Information Literacy QEP, including but not limited to ASP and PHP applications.

• Maintains the Information Literacy and Quality Enhancement Plan Web site, including information pertaining to a wide variety of instructional materials, curricular support, availability of software and technology support.

• Works with librarians, develops and coordinates an information resources training program for faculty who wish to learn about new library-based resources but have not had time to work with them. Training formats may include but will not be limited to targeted workshops, one-on-one consultation, online tutorials for research tools, and the development and distribution of online and printed documentation and instructional materials. Some of these materials may be redeployed as student support.

• Supports faculty use of instructional technology in course-based applications.

• Designs and co-presents (with the information literacy librarians) workshops related to information literacy.

• Prioritizes work and performs related work as required.

• Serves on various committees related to the use of information technology.

PART II: Courses:

Courses served by the Faculty Technology Liaison included a range of departments (reflected in sessions by discipline above), as well as a range of levels (first-year, lower division, upper division, common curriculum, special topics, senior seminar).

ANTH 1305 Intro to Archaeology
BIOL 3434 Ecology
BIOL 1212 Introduction to Biological Problem Solving
BIOL 1309 Nature of Cancer
BIOL 3391 Selected Topics: Global Health
BIOL 2305 Science of Novel Environments
BIOL 1307 Biological Impacts & Issues
CHIN 4322 Readings in Contemporary Chinese Cinema
CLAS 3333 Daily Life in the Ancient World
CLAS 3309 Epic Journeys
CMLT 2350 Science Fiction & The Environment
COMM 3325 Women and Minorities in Media
DRAM 2310 History of Dress
EDUC 5370 Clinical Practice
EDUC 6391 Advanced Problems in Education
ENGL 4305 Topics in Creative Writing: The Long Poem
ENGL 4001 Senior Experience

ENVI 2301 Environmental Science Methods and Analysis

FREN 4307 French Cinema

FREN 3306 Intro to French Literature II

FREN 4306 Introduction to Francophone Literature

GEOS 4301 Senior Seminar

GNED 1300 Code Book Lost

GNED 1300 Vespucci's Maps

GNED 1300 Women & War

GNED 1300 Forever Young: The Life and Times of Bob Dylan

GNED 1300 Xenophobia

GNED 1300 The Meaningful Life

GNED 1300 Migratory Journeys

GNED 1300 Forever Young: Life & Times of Bob Dylan

GNED 1300 Making a Difference for a Livable Planet

GNED 1300 Pursuing Love

GNED 1300 Native Americans in the American Imagination

GNED 1300 Xenophobia

MUSI 3305 Electronic Music

NEUR 2310 Intro to Neuroscience

PHED 3314 History of American Sport

PLSI 3329 GIS & Demographics in Political Science

PLSI 3372 Political Science Research Methods

PSYC 1300 Principles of Psychology

RELI 2356 The Quran

RELI 3355 Non-Canonical Early Christian Literature

SOAN 3333 Forensic Anthropology

SOAN 2313 Social Movements

SOCI 2328 Social Inequality

SOCI 3359 Social Research Design

SPAN 4391 Spanish Cinema

SPAN 4336 20th Century Spanish Literature

SPAN 3391 Afro-Latinos

SPMT 3314 Sport Management

SPMT 1312 Sport in Society

SPMT 3314 History of American Sport

URBS 3365 Research Methods with GIS

URBS 4494 Senior Seminar

PART III: Technologies & Learning Goals:

Spatial Analysis/Map Visualization

Technologies: Google Maps, Google Maps API, ArcGIS, Google Earth, GeoCommunity, ZeeMaps, YourGMaps, GCensus

Learning Goals: Spatial analysis, data literacy, avoiding the ecological fallacy/unsupported inferences, asking spatial questions, creating and presenting visual evidence, spatial literacy, creating maps, understanding congressional representation, creating a sense of place, proximity analysis, land use analysis.

Presentation/Concept Mapping

Technologies: Prezi, Jing, PowerPoint, Google Presenter, Bubbl.us, Mindmapper, Xmind

Learning Goals: Concept organization, brainstorming, collaboration, incorporation of visual evidence, organizing research sources, oral presentation skills.

Web Content

Technologies: Google Sites, Blogger, WordPress.com, MediaWiki, Twitter

Learning Goals: Writing, textual analysis, evaluating and incorporating research sources, class discussion preparation, peer review.

Math/Statistics/Computation*Technologies:* Wolfram Alpha, GEODA, R, GIS, Excel

Learning Goals: Statistical literacy, spatial literacy, data analysis, social science research methods application.

Business/Productivity

Technologies: Google Docs, MS Word, MS Excel

Learning Goals: Collaboration, project management, writing, computation, data management, data sharing.

Media

Technologies: iMovie, Sony Vegas, PowerPoint, XtraNormal, Wavepad, Audacity

Learning Goals: Visual/film analysis, literary analysis, narrative design, creativity, music composition and production, marketing, oral presentation.