LITRE Technology Practices Directory. A year later: Summary of use and findings.
Geetanjali Soni LITRE Assessment Coordinator, October 2007

BACKGROUND
The Technology Practices Directory was developed as a part of Learning in a Technology-Rich Environment (LITRE), North Carolina State University’s Quality Enhancement Plan for the accreditation portfolio for the Southern Association of Colleges and Schools. LITRE’s overarching goals are: a) To improve student learning across the University through the use of technology, b) To investigate systematically the effectiveness of technology-based innovations in learning and teaching, and c) To use the results of these investigations to scale our successes, shape future investigations, and inform campus decision-making. More specifically, LITRE aims to increase student and faculty engagement with technology when technology is shown to be effective in improving learning and teaching, to develop appropriate learning technology-friendly policies, and to improve the physical learning environment.

Discussions during the early stages of LITRE implementation showed a need to know more about what faculty were doing with technology at NC State University and to assemble an inventory of current NC State projects in which faculty are using technology to improve teaching and learning. The LITRE Technology Practices Directory was developed to gather this information.

The directory was developed during summer of 2006 and early fall 2007, and has been operational since November 2006. It is a fully searchable, online database that lists innovative technology-enhanced teaching practices by faculty. Faculty create an account in the directory, list one or more courses they teach, then outline how they use specific technologies in those courses.

DESIGN
Dr. Kevin Oliver, assistant professor in the College of Education provided the overall pedagogical framework for the directory and with Dr. Joni Spurlin, Dr. Geetanjali Soni and Dr. Nancy Whelchel from University Planning and Analysis, designed the directory. Programmers from DELTA developed the directory.

The directory employs a ten-item taxonomy and allows faculty to list the technology they use and list the pedagogical use of that technology. Elaborating on the Media for Inquiry, Communication, Construction, and Expression taxonomy (Bruce & Levin, 1997), and the taxonomy of cognitive tools used in support of open-ended, student-centered learning environments (Hannafin, Land, & Oliver, 1999; Iiyoshi, Hannafin, & Wang, 2005), Oliver (in press) developed the following technology supported activities:

1. Planning class activities or tasks/ projects, setting goals
2. Seeking information, representations, or physical artifacts
3. Collecting/capturing information, representations, or physical artifacts
4. Analyzing or manipulating information, representations, or physical artifacts
5. Integrating something new with existing information, representations, or physical artifacts; extending, building on
6. Creating new information, representations, or physical artifacts
7. Assessing, monitoring progress on student learning
8. One-way communicating
9. Two-way communicating
10. Collaborating on tasks/projects.


The directory is designed to collect the following information from educators using technology in their courses:
I) Demographic data such as name, college, title, contact information etc.
II) Course information such as course prefix and number, department, type of course, number of students etc.
III) Information about the (single) technology or tool they use in the course, (faculty can come back and add multiple tools to this list). This includes the name of the technology and specific software or feature used; the activities it is used for (based on the above-described taxonomy
IV) Details about the activities that the technology is used for (whether the technology is used by students, faculty, how critical it is for the activity etc. and examples)
V) Information about the infrastructure used and infrastructure needed.

PURPOSE AND GOALS
This directory is open to all NC State University staff and faculty. It is hoped that the directory will serve various sections of the campus community. The main audience is faculty, to whom this directory offers a way to document and share their usage of technologies in teaching. They can also run searches by name and return a complete listing of their teaching with technology entries and print this search for inclusion in their portfolio. Faculty can also search the directory to make connections with colleagues whose projects are of interest to them. Deans and department heads can also use the directory to compile a report of innovative teaching with technology within their college. Students can use the directory to identify the technology-enhanced teaching practices that faculty employ before registering for their courses.

From an institutional perspective, LITRE will use the database in its efforts to determine how technology impacts student learning and for planning purposes. Results will also be shared with other campus groups such as the Faculty Center for Teaching and Learning (FCTL), and DELTA so that they can use information to develop specialized workshops around given tools and technology-enhanced teaching activities, and perceived needs.

LAUNCH AND PROMOTION
The technology practices directory is accessible through the LITRE website. Its launch was advertised through a postcard sent through campus mail to all those who had taught at NC State during the current and past semesters. Additionally, the Provost sent an email
to the same population announcing the database and encouraging faculty to enter information.

Subsequently, LITRE personnel have presented the directory to various groups across campus. A one-page handout has also been developed to distribute at faculty development seminars and workshops. LITRE has worked with FCTL and Delta to try and reach faculty through events such as the New faculty Orientation, summer workshops and other events.

**FINDINGS**
To date the number of entries has been disappointing. As of October 1st there were 79 entries in the directory. Additionally most of the entries are from faculty who are affiliated to LITRE in some manner. A total of 49 unique users have made complete data entries.

**Lessons learned about design**
The original taxonomy was adapted by Oliver to better fit the needs of different disciplines, (Oliver, in Press). Removing some questions and verbiage also shortened the data entry process. Faculty however still find that the process to be extremely time consuming. To try and ease this issue, we have opened up the data entry process to support personnel and teaching assistants, who with the lead-faculty's permission can make course entries.

Conversations with faculty members, pilot-testers and others have provided some feedback and insight into the reasons of low usage. One design issue – linking the technology to a specific course has – is perhaps the greatest obstacle to use. Faculty using several technologies in multiple courses find it very cumbersome to enter their projects into the directory. A structure that would allow the listing of multiple technologies and their uses at one time would facilitate data entry. Additionally, having a course based entry structure, does not lend itself to capture of projects that span departments or colleges.

Making the directory structure more intrinsically rewarding to faculty would also increase the data entry. Suggestions for this would be to extend the directory to include other social networking features, like a wiki, social tagging software etc.

**Usage and Uses**
Oliver (2007, in press) reports that despite its shortcomings, reported data include a diverse range of activities and tools meeting the goal of the advisory committee in capturing broad information about technologies used on campus. Oliver’s analysis of the tool usage data indicates that a large majority of the tools reported were used by students in some capacity, with very few being used exclusively by faculty to lecture or teach in a traditional mode. Oliver notes that: “Many technologies are clearly used as part of student-centered learning activities, not just for faculty delivery of information.” In Oliver’s analysis of activities, it was found that technology was used most often for two-
way communication, creating information, and assessing students. In terms of tools, faculty reported use of classroom presentation tools most often, followed by course management systems and other Internet tools and resources.

**Search data**
Usage data shows that at total of approximately 1500 searches have been done on the data. The most common type of search was leaving all fields blank (no criteria supplied, so all items would be pulled up), followed by keyword search.

**Directory uses on campus**
Despite the limited number of entries to date, the directory has served some useful purposes. During the search for LITRE 2nd Phase projects (see [http://litre.ncsu.edu](http://litre.ncsu.edu)) searches of the database helped identify faculty using specific technologies. By contacting these faculty, we could facilitate conversations among them, leading to development of at least one collaborate research project.

Faculty development personnel on campus have also used the directory to determine innovative ways new technologies were being used across campus, and to share and promote some practices.

**Infrastructure Use**
Faculty were asked what was the minimum infrastructure and support required to support their use of technology. Analysis of the entries to date, show that by a large majority, the most commonly required infrastructure was “Access to the internet outside the classroom” (73%).

Other commonly needed infrastructure was:
- Access to specific software (51%)
- Access to internet inside the classroom. (33%)
- Projecting capability for computer (23%)
- Computer labs (21%)
- Access to remote software/services (17%)
- Simple projection equipment (document cameras, overhead, etc.) (15%)
- Student must have access to a laptop or portable computing technology (8%)

**Recommendations for technological infrastructure improvements**
Faculty were also asked for recommendations of technological infrastructure improvements or expansions in order to optimize benefits of use of technology. Qualitative analysis of these recommendations resulted in recommendations in three main areas.

**Hardware/infrastructure.**
This included recommendations for more computer labs, computers in the classroom, as well as requiring students to bring a laptop to class. Easier broadband, high-speed access to wireless on campus and in dorms was recommended. Also it was felt that the web-space allocation for students needs to be increased.
Software
Many recommendations in this category had to deal with WebCT VISTA with recommendations to improve its usability and capacity, have automatic tracking of bugs, have better Wolfware –WebCT integration and complaints about it terrible survey tool. Survey tools were also mentioned several times. There was need for a robust but easy to use survey tool. One user recommended CALS free easy-to-use-tool. Requests were also made for the ability to have live videoconferences, to easily share drawings and for a course bulletin board.

Support and training
The most often mentioned request was for Elluminate training. It was also mentioned that faculty are often not aware of the training and other resources that are available to them and that maybe more localized workshops, at each college would help to inform faculty of options. Training recommendations for Flash, training in videotaping, editing, encoding, etc, more professional support for the upkeep and development of innovative demonstration apparatus, were also made.

CONTINUED PROMOTION
LITRE will continue to promote the usage and awareness of the TPD. Another mailing of post-cards to faculty will be made in Fall 2007. Additionally, LITRE will continue to present the directory to various audiences on campus. This will include, meetings of the deans, associate deans, Faculty Senate, the TLT roundtable and others.

RECOMMENDATIONS
From our experiences, such an endeavor can only be successful if it is intrinsically motivating to faculty to enter their data. Intrinsic motivation could be provided by extension or redesign of the current directory into more of a social networking platform, with wikis or blogs, social tagging etc. for collaborating, and sharing successful pedagogies, as well as “how to” guides. Additionally a design that allows for the entry of multiple tools, not at a course level, would make data entry faster and easier for faculty. At a presentation of the TPD at a local conference (Oliver & Soni, 2006) it was suggested that a UNC system wide directory would be asset.

References


