

# The Laboratory for Innovative Technology in Education (LITE): Exploring Roads to Building a Community in an Urban-Commuter University Environment

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**Abstract:** The Laboratory for Technology Innovation in Teacher Education(LITE) is a collaborative learning environment in which students, faculty, preservice and inservice teachers along with community partners explore ways to combine best teaching practices with the most powerful instructional technology tools to create educational projects and resources. Four COE doctoral fellows were recruited for three years to work alongside faculty members in the Instructional Technology program area, to collaborate on how to best build a technology enhanced community in a university environment which has not been conducive to collaborative, community work in the past. The fellows, along with their normal doctoral studies, are currently creating this technology-rich learning laboratory in the college. In this paper, the fellows report on creating a vision for their learning laboratory, challenges faced, and a plan for overcoming their challenges. A discussion of future plans for this project will also be presented.

## Introduction

Over the past two decades, the use of technology in classrooms, from elementary school to graduate school, has become an increasingly vital, yet challenging component of teaching and learning. At the same time, an explosion in the power, complexity, and academic potential of computing and communications technologies has also taken place. Computing and communication are at the core of an information technology revolution that has pedagogic and societal ramifications.

Instructional technologies have a great potential to help provide real-world experiences and opportunities for students as they learn to critically analyze and solve real-world problems. Educators throughout the nation are seeking ways to harness the power of these technologies. The challenge for educators at all levels has been and continues to be finding meaningful ways to integrate these technological tools into good instruction. The implications of this challenge are widespread – from budgeting for infrastructure, to designing strategies for teacher development, to re-conceptualizing not only the curriculum but also the very definition of what it means to be a teacher and a learner. Preparing successful teachers is our fundamental objective at the University of Houston College of Education. We strongly believe that providing opportunities for teachers to become exemplary users of technology is an integral component of that preparation.

For teachers to use technology to achieve excellence in their classrooms, they will need to learn a variety of new skills, including how to design technology-enhanced instructional materials, how to select and adapt the right hardware and software, how to organize subject-specific projects that use technology, how to guide students in the use of computer-based applications, and how to assess their own and their students' learning in technology-rich classroom lessons. We seek to meet these challenges through the Laboratory for Technology Innovation in Teacher Education.

## **Beginnings**

The Laboratory for Innovative Technology in Education (LITE) was established in 2003 after the College of Education received a \$500,000 award from the Houston Endowment for a proposal submitted by Dr. Bernard Robin. This award is being used to create a collaborative learning environment in which students, faculty, preservice and inservice teachers along with community partners explore ways to combine best teaching practices with the most powerful instructional technology tools to create educational projects and resources that reflect Houston's rich educational and cultural diversity. In order to create this laboratory for innovation, three COE instructional technology and one art education doctoral fellows were recruited by Instructional Technology faculty, to create this learning laboratory in the college while they pursue their doctoral degrees in Curriculum and Instruction. The range of professional expertise among the fellows ranges from media, television, teaching, library science, to the Arts. The diversity of skills among the group is a major strength as they embark on creating their innovative learning laboratory.

## **Creating a Vision**

The fellows envision The Laboratory for Innovative Technology in Education (LITE) as a model for how technologically proficient teachers, pre-service teachers, and curriculum developers can be among the best prepared in the country in integrating technology to solve real-world issues through projects that will link their students to their community. There are six major goals of the laboratory and the fellows are continually assessing the best ways to meet these goals.

- Critically examine and assess the impact of educational technologies
- Contribute to a national dialogue on the integration of technology in teacher education
- Utilize community-based resources to create a "Learning Laboratory"
- Prepare new pre-K-12 teachers to meaningfully use technology in their classrooms
- Prepare current pre-K-12 teachers to meaningfully use technology in their classrooms
- Host teacher workshops and summer institutes

Currently, several steps have been made to work towards accomplishing these goals. First, the fellows created a website to offer information about LITE, the participants, as well as links to other resources. The website is located at <http://www.coe.uh.edu/lite>. Second, the fellows began offering a monthly seminar entitled "LITE Presents...". The session topics vary from month to month and are designed for College of Education students and faculty to attend. Each month a different speaker is asked to lead the session. The first "LITE Presents...Researching using Technology Resources" conducted by a University of Houston research librarian was a great success with 25 people in attendance. A subsequent session, presented by a COE Technology Consultant introduced policies and procedures for accessing and using a variety of "media gear" and also methods on how best to use this "gear" to

enhance student projects and faculty courses. For the Spring 2005 semester, the “LITE Presents…” series will continue with “Digital Storytelling” and “Videoconferencing in the K-12 Classroom”.

A third, and more recent fellows’ endeavor is geared toward creating a community among doctoral students in the College of Education. Cohort groups offer an effective way to help learners succeed in long-term learning efforts, such as completing a dissertation. Potential benefits in cohort group research include providing a framework and a process for increasing productivity, creating a support group that provides camaraderie and a sense of belonging among members, bringing multiple perspectives to the discussion, and providing a performance model that embraces many of the skills required of the researcher (Wittle & James, 1998). In addition, it has also been reported that cohort groups can reduce anxieties connected with the doctoral process (Miller & Irby, 1999). Currently there is no forum in place outside of the normal course schedule in which doctoral students can meet and share their research with colleagues. The fellows initiated a research interest group that meets periodically to discuss individual research and projects. As the size and areas of interests diversify, the group will divide into smaller groups with specific interest areas as needed. These cohort groups provide an important avenue and previously missing element among doctoral students. In the future, the group will hopefully attract master’s level students into pursuing in College of Education projects and research as well.

## **Mentoring Fellows**

In addition to the combined efforts of the four fellows to meet LITE goals, each fellow was selected by a faculty member who would serve as a mentor during the student’s fellowship. This mentoring initiative allowed for full time doctoral students to experience a more focused and guided doctoral program unlike most College of Education student at the University of Houston who typically matriculates as a part-time student while working full-time. In the first year, the fellow would collaborate with their mentor and work on research with the mentor as the lead. The second year, the doctoral fellow would begin thinking about the research they were most interested in with the mentor supporting the fellow’s work. During the final year, the mentor would help guide the fellow through dissertation.

Hiemstra and Brockett (1998) have described the mentoring relationship as a rather unidirectional process in which a more experienced person provides guidance, support, and opportunities for socialization to someone who is more of a novice. Yet because mentoring is a special kind of giving that serves as a way of passing one’s legacy to another person, it can potentially be beneficial to both parties in the transaction. During the first year the fellows and faculty members had more of a traditional mentorship but since have moved into a stronger working relationship. Although it is probably rare for these relationships to evolve into partnerships, the fellows are beginning to witness this possibility. Hiemstra and Brockett (1998) further describe that there is no single correct route to forming a partnership. In their observations, it sometimes is the result of a common vision or it may come from a mutual desire to interact with another like-minded person.

Faculty members chose the fellows primarily based on common research interests, in addition to specific academic criteria. In the beginning, the mentorship began with the fellows receiving guidance, learning about research methodology, etc., but the partnership evolved and this collaboration between the mentor and the fellow has enabled many other separate projects both within the University of Houston and the community. Although all of the fellows work together within the LITE project, each individual’s journey to discovering new knowledge has created different individual experiences. Each of the fellow’s perspective outlining the independent projects and experiences is presented in the following paragraphs.

### **Alysa’s Experiences**

As a fellow in the Houston Endowment grant, I have had a challenging but valuable experience. I can already tell that the knowledge I have gained in this program will be extremely beneficial in my future teaching endeavors. My experience as an HE fellow has allowed me to work extensively on a longitudinal study with Dr. Melissa Pierson that explores preservice teachers’ developing vision of technology in teaching and learning. These case studies include eight teacher education students whom we are following for four years, the two years of the teacher education program and the first two inductive years of teaching. We are using qualitative methods of

interviewing and observation to better understand the perceptions, and challenges of teaching with technology and the driving development of a technology-rich program by education students. We believe we are structuring a forum through which these particular novice teachers can tell their own story and come to connections that will not only help shed light on becoming a teacher in the age of technology but will ultimately form the basis for improved self-reflection and technology-rich teaching practices.

This case study research has encouraged me to hone my research skills, participate in organizations and conferences I otherwise would not have known about, and develop other professional relationships in and outside the College of Education. My mentor has included me in other work, and being privy to professional conversations and interactions allows for a further understanding and importance of the meaningful collaboration occurring in the College of Education.

In addition to the case study research, I began working with the University of Houston Charter School. The University of Houston Charter School is a public charter school which focuses on constructivist principles and is located on the university's campus. Dr. Carolyn Black, the University of Houston Principal, graciously permitted me access to the school during the fall semester of 2004. My main objective entering the school was to formulate some ideas on how their teachers are developing instructional technology practices and attitudes as they learn to utilize new technologies in their classroom. My second objective was to experience conducting interviews and classroom observations from a researcher's perspective. The data were collected and presented in a final report to the principal. Participating in this study helped shed light on my strengths and weaknesses as a researcher, and it also helped shape my topic for dissertation.

### **Anne's Experiences**

My experience as an HE fellow has been a very positive one. It has given me the opportunity to pursue, deeply, the areas of educational technology that are interesting and important to me. I have felt fortunate to be working with Dr. Robin, my mentor. He and I have common interests and goals, and we work well together. When I started at University of Houston, I was a Master's student in the Instructional Technology program area in the Department of Curriculum and Instruction in the College of Education. I had heard that Dr. Robin was working on community projects, more specifically on a media literacy project for the Museum of Fine Arts Houston (MFAH). This caught my attention because, before starting my graduate degree, I had worked for six years freelancing on television and film projects as a Producer, Associate Producer, and Production Coordinator. My interests in educational technology came out of my profound interest in media and more specifically, educational media. The idea of using media to educate, rather than solely to entertain or inform, captivated me.

I began working on the **Screening America** web site as an Independent Study in summer 2003. **Screening America** is a curriculum-based education program offered at the Museum of Fine Arts Houston that focuses on the interpretation and analysis of films and television programs. The program's goal is to teach 6th through 12th grade students about subjects such as history, social studies, and government through the medium of film and television. In addition, they learn the important concepts of media literacy and what it means to be "media literate". In addition to working on the web site, I was asked by the Manager of Student and Family Programs, George Ramirez, to facilitate the **Screening America** program on Tuesday and Wednesday mornings because of my past experience working on television and film projects. This has been an exciting opportunity for me because I have been able to facilitate lively, interesting discussions about film and television with students. This has given me the unique opportunity of discovering first hand the interests and education levels of the students who attend the program so that I may translate this information into developing a useful web site to accompany the program. The majority of the design of the web site was completed in summer '04.

The next phase has been to design curricula to go along with each film or television episode. This is a vital part of the project. I was fortunate to be contacted by a graduate student of Instructional Technology from the University of Houston Clear Lake campus, Michelle Giles. She had heard about the project and was interested in doing an independent study. Her first Master's degree was in Curriculum design so it was a perfect fit. Beginning in the summer and continuing into the fall semester, she designed curricula for the films "12 Angry Men" and "In the Heat of the Night".

One major challenge that has occurred has been with publishing the web site on the World Wide Web. Since we were working directly with the MFAH, we had no contact with the American Museum of the Moving Image (AMMI), who licenses out the **Screening America** program to participating museums. After publishing the web site on the internet, we burned the site to CD so that George Ramirez could show it to AMMI on a trip to New York City. They contacted Dr. Robin and me a week after George returned from NYC, and asked us to take the site down as they had not agreed to us publishing the site online. All of this stemmed from miscommunication between the MFAH and AMMI. So, we password protected the site so that only teachers could use the site for educational purposes. George later asked us if we could put the web site materials on CD-ROM to be handed out to teachers so that we would not upset AMMI further. All of this has been a rude awakening as to ownership of online materials. We are pursuing more discussion about this matter and the matter of copyright when using online materials for educational purposes. As for now, I am working on putting the curricula materials on CD-ROM so that teachers may accompany their visit to the MFAH **Screening America** program with lessons covering issues and topics raised in the films and television programs.

A future challenge, which correlates with the overall topic of our paper, "Building a Community in an Urban Community University Environment", is to gain the interest of other graduate students of IT in participating in designing educational materials for Screening America. Because of the nature of a commuter university and the chaotic schedules of students in our IT program, students do not normally take on extra projects because of the workload they have with their regular courses. One way we have been trying to overcome this is through offering independent study opportunities and to incorporate work on the project into existing courses. In addition, through socializing with fellow students, I am able to assess their interests to find out if they might be interested in getting further involved in some of the LITE projects. Building relationships with students in the program has been beneficial when planning direction in my projects as well as in other LITE projects.

In addition to working on "Screening America", I have been working on developing the digital storytelling application with my mentor Dr. Robin. In his course "Educational Uses of Digital Storytelling" he has been teaching digital photography and digital storytelling. The Digital Storytelling application has been a great way for students to express ideas, demonstrate their comprehension of subject matter, do research, and to understand and demonstrate the essential elements of storytelling. A comprehensive list of resources can be found on Dr. Robin's web site <http://www.coe.uh.edu/digital-storytelling/> I am going to be using the digital storytelling application while working with a group of high school U.S. Government students at the Middle College of Technology Careers in the Houston Independent School District. These students have attended the **Screening America** program, and I am going to be working with them in furthering their media literacy education through the digital storytelling application.

### **Carrie's Experiences**

**Grassroots: Art in Action** is a project developed as a direct result of becoming a Houston Endowment Fellow. In conjunction with my mentor, Dr. Sara Wilson McKay and fellow art education students and teachers we developed **Grassroots: Art in Action** (<http://coe.uh.edu/arted/grassroots/>) in order to improve awareness and quality of art education in Houston. Enhanced by the technological support of LITE, this group has developed into an active community resource. The **Grassroots Listserv** connects over 100 art educators in K-12 classrooms to each other and to the rich artistic community of Houston. ArtWorks! a pilot Grassroots program funded by Texas Commission of the Arts will work with local Houston artists, art educators, and students in K-5 classrooms in two Houston school districts. After one year of study I was challenged by my mentor's move to Texas Tech University, however the move has facilitated a joint effort between the University of Houston and Texas Tech. In fact, the continuation of this project could not take place without the technology support offered through LITE video conferencing capabilities as well as support for digital photography and email. An estimated 2500 students, art educators, and artists will be served through the ArtWorks! program in the Spring of 2005.

I also began an internship with **Lawndale Art Center** during the Summer 2004 to help develop a website for Lawndale's education programming associated with Día de los Muertos. I collaborated with Lawndale staff and Houston K-12 art educators to develop resources for teachers and students. In September 2004, I joined Lawndale staff to represent Lawndale Art Center and to launch the new Día de los Muertos website (<http://www.lawndaleartcenter.org/dod>) for teachers and students at the Educators' Open House in the Houston Museum District. In addition the website proved to be useful for the gallery director of the Houston Community

College-Northeast for educating and preparing administration for the Día de los Muertos culminating exhibition of student art work. I continued to enrich my experience through participating with Lawndale art educators and HCC-Northeast as they worked to prepare for the exhibition. At the opening event, along with the presentation of student art work, computer monitors were available for student, parent, and teacher visitors to explore the Día de los Muertos website.

Currently I am collaborating with high school Spanish teachers and students to provide Spanish translations for the website. My internship culminated in a presentation at the Texas Art Education Association (TAEA) meeting regarding this project entitled “Developing online education resources for the art classroom”. My community involvement experiences thus far continue to open new doors for interesting educational opportunities as evidenced by my recent invitations to participate on Lawndale Art Center’s Education Committee and to write for *School Arts Magazine*.

### **Jeannette’s Experiences**

I came to this program after a career as director of art museum libraries and having created a website for the Museum of Fine Arts, Houston. I became engaged with the instructional technology program at UH through some joint MFAH/UH web projects. I was very fortunate to be chosen as a fellow in the Houston Endowment fellowship program. I was assigned a mentor, whose interests in art, graphic design, and developing instructional websites fit well with mine.

I have participated in four projects. They include planning the library’s illuminated manuscript website, documenting a team taught course which linked two freshman subjects, creating a flash timeline of American landscape painting, and observing and analyzing a philosophy course. The first project grew out of a relationship with a library colleague. As soon as I entered the program, the head of Special Collections at the university library invited me to help create a website about an illuminated manuscript in their collection. An expert in the area of codicology from Italy who worked in the department as a cataloger of rare books had studied this manuscript in depth and had produced a text for the website. Several issues surfaced over the course of the two semesters we spent in planning. The biggest problem was the timing for the library staff involved. They were in the midst of a library-wide renovation, and were preparation to move their collections to a new part of the library. The head of the library’s web services was on a three month sabbatical, so he was not included in the planning. The staff member in Special Collections responsible for supervising web projects was engaged in completing a project of her own before the move, so the usual planning protocol was not followed.

As we began our meetings, a few other interesting issues arose:

- The text was written for other experts in illuminated manuscripts, not for students at the university as I had envisioned;
- The Special Collections staff wanted to enhance the images more than I did;
- The staff expert/author moved back to Italy;
- The head of web services returning from sabbatical stated that nobody but library staff would code documents for the library’s website.

Although the project is on hold for now, I knew from my library experience that collaborative projects often falter over differences in vision or methodology. With a one semester hiatus, the library renovation is finished and Special Collections has a new, expanded space. Now we can resume the project in a more stable environment.

The second project I became involved with was a team taught course which linked two freshman subjects. It combined a freshman American history class with English composition, and added web development and a writing lab. The history course was media rich to include music, art, photography and movie clips to give context for each period studied. The class, although large and mainly lecture format, was fast paced and stimulating. The history class was divided into two smaller sections for English composition, which used the history class content as a springboard for writing assignments created as web pages. Each student had a computer and received individualized help from graduate students in IT, and web building instruction from professors in the IT program.

Although I assisted the students with technology, my main role was to document the experience using digital photography. I worked with another fellow, Anne, to videotape interviews with six students of the students. I was

surprised that the students had such an overwhelmingly positive experience. By keeping the students together for two courses, providing them with multiple teachers, requiring them to present their final projects to each other and the deans of the various subject areas, they seemed to develop a sense of community for the first time at this urban commuter campus. The website documenting the course can be found at <http://discovery.coe.uh.edu/linked04/linked04/index.htm>.

For my third project, I created the content for a flash timeline of American landscape painting from 1740 to the present day and obtained copyright permission to use all of the images. I decided to use images from only two art museums, the Museum of Fine Arts, Houston, and the Amon Carter Museum in Fort Worth, Texas. I partnered with a masters student, Shin Jung Kang, who did the technical and artistic work. Due to a short turnaround time for the project, we didn't ask the Amon Carter Museum for permission to use the images until the project was completed. I made two trips to meet with the Amon Carter's staff to obtain permissions, which they granted us at a discounted price. Shin Jung came with me on the first trip, and the museum director gave us a thorough behind-the-scenes tour, including their art storage area where many of the works we used were being kept. It was a great experience for both me and Shin Jung to see the works of art in person after researching them in reproduction. However, the images used for the timeline background will have to be replaced, because the museum wouldn't allow us to use details of the paintings that way. The Amon Carter staff ended up rewriting their copyright permission policy to allow this kind of educational use in the future. The project can be seen at <http://viking.coe.uh.edu/~skang/timeline/>

My original mentor and I had common interests and strong backgrounds in art, but we had trouble communicating. We initially had weekly meetings, but they tapered off as the semester progressed, and her professional obligations demanded her time. After two semesters, I changed advisers/mentors.

For my fourth project, my new advisor/mentor encouraged me to seek mentoring relationships through projects I had established with professors and colleagues in other areas, such as the library project and a teaching internship last semester with the head of the Philosophy Department. I observed, analyzed and helped teach two classes of the course, Philosophy and the Arts, which incorporates multi-media to introduce Greek theater, opera, architecture, painting, performance art and music. This semester I am continuing observations and interviews with her regarding her use of technology in teaching for my candidacy paper.

## **Challenges**

The first, and major challenge, has been in relationship building between the fellows and their faculty mentors, as well as relationship building among the four fellows themselves. Originally, the fellowship was designed to be a collaborative effort between the fellows and their mentors. This mentoring relationship turned out to look very different between each one of the fellows for various reasons and has been one of the challenges the fellows have had to face during their first years. First, it has taken time to build solid, collaborative relationships among the mentors and doctoral fellows. The mentors and fellows have had to learn how to work with each other toward envisioning, re-envisioning, and obtaining goals. Secondly, one of the faculty mentors accepted a position at another university. The professor and fellow were currently working on several collaborative projects together. There has been a transition period for the fellow to adjust to a new mentor, as well as maintain a long distant working relationship with the previous mentor as well as an uncertainty about existing and future collaborative projects. All in all, the fellows all agree, the mentoring relationship is an invaluable opportunity and provides firsthand experience that most doctoral students do not have. Because the fellows devote their time to taking courses, working in the Laboratory, actively collaborate with community partners and conduct research, it is imperative to have the mentors support for the success of the project.

The second major challenge has been in creating a community of innovative learning using technology at a university which is largely attended by students who work full-time, commute to campus, and who mainly attend classes at night. This challenge is an ongoing one in which the fellows are constantly looking for new ways in which to entice graduate students to enhance their coursework, portfolios, and resumes by involving themselves in community-based projects which use technology. Many students are interested in creating innovative educational resources for teachers, but many do not feel they always have the "extra" time to spend along with all of their course work, and full or part time jobs.

One approach to overcoming this challenge has been to offer “LITE Presents...” The establishment of cohort groups among doctoral students which will diffuse into the rest of the graduate student body also addresses this challenge. A third initiative, an asynchronous learning environment through the LITE website meets the challenges of a commuter campus through the provision of a discussion forum available for students to post ideas and information to share with other students. In addition artifacts, such as video of “LITE Presents...” sessions are available on the web site. Finally, information on ongoing community-based projects and how to get involved is available.

## **Future Endeavors**

Fall 2004 has been the beginning of the second year of LITE and the fellows are continuing to build and further the vision of LITE. The success of this project depends on the real collaboration and shared leadership of all participants. The doctoral fellows are beginning to see results and strive to explore all paths that might help in building a technology rich learning community for the future.

The LITE fellows, in pursuit of creating meaningful connections with teachers, students, and schools in the Houston area, have begun designing and implementing the LITE Works program. The concept is that the LITE fellows will make themselves available to teachers and students to help them in developing further their technology skills. We understand that many teachers have access to technology and software, but they are not always sure how they are to incorporate it into their curricula. Because we are part of the Curriculum and Instruction department in an institution of higher education like University of Houston, we have access to knowledge and technology that is useful to teachers and students. We would like to disseminate this knowledge to those in need. We imagine ourselves as a mobile team or “task force” that is available to teachers and students as a resource for educational technology application. Teachers and students may come to our LITE laboratory, or we may go to their classrooms, whichever is best for the teachers and students.

Our first LITE Works project will be working with Project Row Houses. Project Row Houses is a neighborhood based art and cultural organization located in Houston's Third Ward. PRH was established in 1993 on a site of 22 abandoned shotgun houses (c. 1930) to connect the work of artists with the revitalization of the third ward community (Retrieved from <http://www.projectrowhouses.org> on January 7, 2005). PRH would like the LITE team to work with the students in their after-school program on strengthening their technology skills. During the spring '05 semester we are planning on working with students one day each week. Beginning with teaching simple technology skills and culminating in teaching digital storytelling and web design. We have also identified a couple of other teachers who are interested in using technology in their classrooms and are in the process of developing a plan of action.

Finally, LITE Works will be working with Dr. Bernard Robin this summer to facilitate a Digital Storytelling workshop for K-12 teachers. Teachers will attend the workshop for 1-2 days at UH in order to learn Digital Storytelling and its applications in their classrooms.

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