April 26, 2005

Elizabeth Richardson
821 Lions Club Dr.
Rolla, MO 65401

Dear Ms. Spilka**:**

The University of Missouri – Rolla has recently started Bachelor of Science and Master of Science programs in Technical Communication. The University is currently lacking usability hardware and software applications of which many technical communication entry level positions require knowledge. The graduate students in the new program need such software and hardware to conduct usability testing and research. In addition to the need for software applications to conduct academic research, the students also require a space in which to do the work. The Department of English & Technical Communication currently does not have ownership of a computer lab that students can access at their convenience.

With the creation of a usability lab owned by the Department of English & Technical Communication that the STC can help fund, the new programs in technical communication will be able to better prepare its graduates with the knowledge and ability to either enter the workforce or continue their education and research to better the field of technical communication.

The research conducted and the results reached will provide new information into the field of technical communication. The unique blend of engineering, technology, and communication available at the University of Missouri – Rolla will give new perspectives and insights through interdisciplinary interaction and research. These factors will further the field of technical communication with fresh ideas and research opportunities.

Sincerely,

Elizabeth Richardson

Creation of a Usability Lab
for the University of Missouri – Rolla Campus

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Dr. Kathryn Northcut

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Principal Investigator:
Dr. Kathryn Northcut
University of Missouri – Rolla

Project Summary

The University of Missouri – Rolla has recently initiated Bachelor of Science and Master of Science degree programs in Technical Communication. With the advent of these new programs comes the need for new technology and space for the students to work in. The University of Missouri - Rolla is currently lacking usability hardware and software applications, such as eye tracking hardware and Robohelp, which many technical communication entry level positions require knowledge of. The graduate students in the new program need such software and hardware to conduct usability testing and research. In addition to the need for software applications to conduct academic research, the students also require a space in which to do the work. The Department of English and Technical Communication currently does not have ownership of a computer lab that students can access at their convenience. The procurement of lab space is being worked on in a related project. The usability lab would use part of this space if it is acquired.

With the creation of a usability lab owned by the English and Technical Communication department, the new programs in Technical Communication will be able to better prepare its graduates with the knowledge and ability to either enter the workforce or continue their education and research to better the field of technical communication.

The research conducted and the results reached will provide new information into the field of technical communication. The unique blend of engineering, technology, and communication available at the University of Missouri – Rolla will give new perspectives and insights through interdisciplinary interaction and research. These factors will further the field of technical communication with fresh ideas and research opportunities.

Project Description

Project Objectives

During the eight-month preliminary phase, research for usability lab hardware and software will be completed. A vendor for the usability product services will be selected upon and met with to determine the layout, design, and material needs of the room in order to divide the proposed site, Campus Support Facilities 114 (CSF 114), between a student use lab and the usability lab. Also during this time, bids for construction will be taken and a contractor will be selected to construct the necessary walls for the lab.

During the 18-24 month project, the usability lab will be designed and constructed and the chosen contractor will begin construction on the walls needed for the lab. While the walls are being constructed the lab hardware and software will be purchased from the company settled upon during the preliminary phase. After the room construction is completed, lab set up will begin.

The final objective of the project will be the ability of the Department of English and Technical Communication to produce graduates ready to either enter the workforce or continue doing research with the skills gained by using the new usability lab.

Scope of Work

Creating a usability lab for the Department of English and Technical Communication at the University of Missouri – Rolla will first require creating the space in CSF 114 for the lab to be placed in. Once a room layout is decided upon, bids from various contractors will be taken on building a wall to separate the usability lab from the student use lab as well as a wall dividing the testing area from the viewing area within the usability lab.

The hardware and software necessities for the lab will also be researched in the eight-month preliminary period. Universities that already have usability labs will be contacted to see what types of materials they have in place, the effectiveness of their labs, and the costs associated with the labs. Upon deciding what is needed for the usability lab, research will be undertaken to pinpoint who produces the products needed and where to purchase the products.

During the 18-24 month project, the usability lab will be designed and constructed. Before room construction begins, a meeting will be help with the usability lab provider to ensure the room meets the size and design specifications required for the lab. The chosen contractor will begin construction on the needed walls within the lab after this meeting. While the walls are being constructed the lab hardware and software will be purchased from the company settled upon during the preliminary phase. After the walls are constructed, the lab layout decided on with the usability company will be set up.

Design, Methods, and Data Collection and Analysis Procedures

The computer lab housed in CSF 114 will be divided into two sections; one containing a student use lab and the other housing the usability lab.

The hardware and software necessities for the lab will also be researched in the eight-month preliminary period. At least ten universities that already have usability labs in place will be contacted to see what types of testing materials they have available, the effectiveness of their labs, and the costs associated with the labs. If travel is required to see the lab in person, the researchers will do so in a three day time period for each visit. Using the information obtained from other Universities, a portfolio outlining each lab and its uses will be created for reference materials. Using the information from each of the universities, an outline stating what type of research we wish to be able to conduct on our campus and the materials required for such.

As an example, the School of Library and Information Science at Indiana University has a usability lab with the facilities to capture, edit, and analyze live user performance data. The lab set up is designed along the usual lines of usability labs with two separate rooms; one for testing and one for observing. In addition to the one-way mirror dividing the two rooms, several video monitors are also available for observation. The new lab at the University of Missouri – Rolla would contain similar usability hardware, as well as some other materials to conduct other types of testing, such as eye movement tracking on the screen. See Appendix A for a listing of Indiana University lab containments.

The various companies found that produce usability lab materials, such as Sun Labs and OvoStudios, will be contacted to acquire pricing and service information. The company that offers the hardware that we are looking for at competitive prices with good service will be selected for further consultation on materials. Once the company is selected, meetings will be held to begin finalizing the room's layout and requirements as well as the lab materials needed.

Also during the eight-month research period, contractors will be contacted to offer bids for the room construction. The contractor with the most competitive price, time efficiency, and high quality work will be chosen to do the work for the lab.

During the 18 – 24 month project, the usability lab will be designed and constructed. The chosen contractor will begin construction on the needed walls within the lab. While the walls are being constructed the lab hardware and software will be purchased from the company settled upon during the preliminary phase. After the construction is completed, lab setup and training on how to use the lab will begin.

Budget and Schedule

The majority of the $10,000 grant will go towards paying the researchers to conduct the research and for accommodations and traveling expenses while visiting other universities. Two researchers will be employed during the 8 month research phase to conduct the research for the usability lab. Each researcher will be paid $6/ hr and expected to work about thirteen hours a week. For the trips that may be necessary to conduct research at other university campuses, each researcher will be given $250 per trip to cover the expenses for the trip. It is expected that ten trips will be taken during this time.

8 Month Preliminary Budget and Schedule

Budget	$10,000.00*
Payment for researchers (2 x $6/hr @ 13hrs/wk)	$4,992.00
Travel compensation (2 x $250/trip for 10 trips)	$5,000.00
Total	$9,992.00
* Any left over funding will be used for lab construction and materials	

Schedule	8 Months
August 15, 2005	Begin researching companies and materials
	Begin contacting companies and other Universities with labs
~ Every other week	Travel to a university campus to see their lab and research they are conducting
January 15, 2006	Finished with traveling and finalizing information portfolio on labs
	Devise criteria for lab needs.
February 1, 2006	Begin contacting usability lab companies to see if they will meet the established needs.
February 15, 2006	Select a lab company and begin room specifications.

March 1, 2006	Begin contacting contractors for the construction job and accepting bids.
April 1, 2006	Close bids and select a contractor.
April 7, 2006	Meet with contractor and usability company to finalize room construction requirements.
April 15, 2006	Lab layout, contractor selection, and company selection is completed.

For the 18 – 24 month project, the budget will be divided between the construction costs for the lab and the usability materials for the lab. See Appendix B for a preliminary idea of some materials required for room construction.

18 – 24 Month Project Budget and Schedule

Budget	$100,000.00 – $150,000.00
Room Materials and Labor	
Wall Materials; QuietRock Serenity QR-530; 250 sqft @ $5.89/sqft	$1,472.50
One-Way Mirror; 36" x 48" Unframed ¼" Acrylic	$199.95
Construction Labor Costs for Room	$5,000.00
Room Total Costs	**$6,672.45**
Lab Material Costs**	
Logging Core	$25,000.00
Fixed Lab Add-Ons and Services	$60,000.00
Eye Tracking Add-ons	$28,000.00
Tables, Chairs, etc.	$1,000.00
Lab Total Costs	**$114,000.00**
Room and Lab Total Costs	**$120,672.45**

Schedule	18 – 24 Months
October 1, 2006 – January 1, 2007	Room construction
January 1, 2007 – March 1, 2007	Lab set-up and training
March 1, 2007 – October 1, 2007 or May 1, 2008	Usability testing and research

**Prices are based on preliminary information from Ovo Studios. See Appendix C for specific information on lab materials.

If the total costs of the room and lab exceed the budgeted amount, the remaining amount will be covered by other funding sources.

Organizational Overview

The University of Missouri – Rolla (UMR) was founded in 1877 as the Missouri School of Mines. Becoming a part of the University of Missouri system allowed the school to broaden its scope of education to many other fields, such as computer science and the liberal arts.

The English faculty at UMR consists of seven Associate and Assistant Professors and eleven lecturers and Professor Emeritus. Between them they have considerable teaching experience and a wide range of research expertise, two of which, Dr. Ed Malone and Dr. Kathryn Northcut, specialize in technical communication. Its members have experience as poetry editors of national journals and webzines, as editors of volumes of literary works, and as publishers of poetry webzines. Dr. Northcut has several years of experience in industry as a technical writer and Dr. Malone has directed multimedia labs for another university prior to residing at UMR.

References Cited

http://www.ovostudios.com
http://www.slis.indiana.edu/technology/usability_lab.html#facilities
http://www.quietsolution.com/Products/Construction___Building/QuietRock/quietrock.html
http://www.seethroughmirrors.com/
http://www.umr.edu/~english

Appendix A

The Usability lab at Indiana University contains the following:

- 2 Sony DXC-107A CCD Color Video Cameras, equipped with Canon R-II electrically controlled zoom lenses and wall-mounted on Pelco remote-control pan/tilt bases.
- Audio-Technical superhypercardioid (super shotgun) microphone for discrete data collection.
- Extron VSC 75 high resolution scan converter for capturing live video from the subject's computer screen.
- Data Transfer Switch for selecting origin computer (PC or Mac) for data collection.
- Dell OptiPlex GX240 2.0 GHz Pentium 4 workstation with 19"Dell monitor, 512 MB RAM, 20 GB HD, 40x CD-RW, 250MB Zip drive, 100BaseT Ethernet, running Windows 2000 Professional. Altec Lansing speaker system. This machine is also networked onto the local SLIS LAN.
- Macintosh Power Mac G4 with 17" Monitor, dual 1 Ghz, 512 MB RAM, 60 GB HD, CD-RW super drive, 250MB external Zip Drive, running OS X. This machine is also networked into the local SLIS LAN.
- One-way speaker to enable control room to testing room communication.

    The control room at Indiana University contains the following materials:

- Dell Dimension XPS R400 Pentium II workstation with 17" Dell monitor, 128 MB RAM, 8 GB HD, 100 MB Zip drive, 100BaseT Ethernet, running Windows 2000 Professional. Altec Lansing speaker system. This machine is also networked onto the local SLIS LAN.

- Macintosh Power Mac G4 with 17" monitor, dual 1 Ghz, 512 MB RAM, 60 GB HD, CD-RW super drive, 250MB external Zip drive, running OS X. This machine is also networked into the local SLIS LAN.

- Pelco MPTAZ Pan/Tilt and Scanner controls for remote camera operation.

- Mediator medium-resolution scan converter for titling and effects generation.

- Cardioid microphone for narration, overdubbing, and control-to-test room communication via audio monitor.

- Sony PVM-411 video monitor rack for monitoring all online video sources.

- Panasonic Digital AV Mixer WJ-AVE7 for composing displays from various monitor inputs for recording, including P in P effects, fades, etc.

- 3 JVC BR-S800U industrial video cassette recorders, equipped with SA-R50U time code generator/reader boards and SA-K26U RS-422 interface boards: 2 for capturing camera output and 1 for capturing scan converter (computer screen) output. Each can function independently or can be slaved to a single universal RMG-30U serial remote control.

- 3 JVC TM-131SU Color Video Monitors located in the observation room for monitoring online sources during the evaluation session and providing high-quality output for post-session analysis and mixdown.

- JVC RM-G800U Editing Control Unit for post-production assemble/insert mixdown of recorded video source into condensed "highlights" tapes.

- Teac TASCAM M-06 six channel professional audio mixer, monitored via 5W self-amplified speakers or headphones.

- Optimus SCT-56 "Pro Series" dual audiocassette deck with auto-reverse, dual digital time counters, and high-speed dubbing capabilities.

- Hewlett Packard LaserJet 4 Plus printer.

- Speakerphone equipped with a flashing silent ringer and a digital voicemail box.

- Panasonic VHS Video Recorder with Bogen 3021/3221 tripod and carrying case.

- One-way mirror for unobtrusive observation.

- Requisite cabling, stands, tables, chairs and other paraphernalia to allow above equipment to function and be used properly.

- Usability lab equipment documentation and trouble shooting guide.

Biographical Sketches

Dr. Kathryn Northcut, PhD

Professional preparation

Western State College, Gunnison, Colorado
B.A. English, August 1986

Colorado State University, Fort Collins, Colorado
M.A. Teaching English as a Second Language, August 1995

Texas Tech University, Lubbock Texas
Ph.D. Technical Communication and Rhetoric, May 2004

Appointments

Assistant Professor of Technical Communication, University of Missouri – Rolla
June 2004 – present

Book Reviewer, Journal of Technical Writing and Communication
2003 – Present

Proposal Reviewer, Hawaii International Conference on Arts and Humanities
2003 – 2004

Steering Committee Member, Graduate English Society Conference
2002 – 2003

Graduate part time instructor, Texas Tech University
Fall 2001 – May 2004

Tutor, Texas Tech University Writing Center
Fall 2001 – Spring 2002

Lecturer, Texas Tech University
1999 – 2000

Technical Writer, USDA/MATCOM, Fort Collins, CO
1999

Composition Committee Member, Colorado State University English Department
1995 - 1997

Technical Writer, Baker Instruments, Fort Collins, CO
1995 – 1996

Tutor, Colorado State University Writing Center
1994 – 1995

Assistant Director, Colorado State University Writing Center
1994

Teaching Assistant in ESL, Intensive English Program, Colorado State University
1993 – 1995

Adjunct Instructor in ESL, Intensive English Program, Colorado State University
1993 – 1995

Assistant Director, Rocky Mountain Biological Laboratory, Gothic CO
1992 – 1993

Legal Assistant, Jim Starr and Associates, Crested Butte, CO
1990 – 1992

Circulation Manager, Crested Butte *Chronicle & Pilot* Newspaper, Crested Butte, CO
1986 – 1990

Synergistic Activities
"Approaches to Rhetoric of Science Investigations." Graduate English Society Conference. Lubbock: 2002.
"Humor in the Composition Classroom: Use of Political Cartoons." Colorado Conference on College Composition and Communication. Greeley, Colorado: 1997.
"Computers in the Composition Classroom: Hypertext Instructional Materials." Rocky Mountain MLA. Spokane: 1996.
"Rhetoric of Science: Empirical Validation and Contradictions in Discourse Analysis." Conference on College Composition and Communication, New York: 2003.