

## Application Details

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### Proposal Title

History of Technology Laboratory

### What are the desired learning outcomes for your students and what learning gaps have you identified?

The History of Technology Lab (HOTLab) is a space in which students, faculty, and researchers across the University can play and create with old media. There are currently fifteen courses across five departments (listed in response to question 2) interested in using the HOTLab for experimental hands-on teaching and learning. The HOTLab engages three primary techniques of student-centered pedagogy: (1) collaboration, (2) experiential learning, in which learning is accomplished by doing not just by reading about something, and (3) experimental and play-based learning, that is, open-ended activities that encourage student ownership of outcomes, creativity, and intellectual risk-taking.

The courses interested in using the HOTLab share five learning outcomes and face related gaps in student learning. In general terms, students have the unique challenge of tremendous exposure to contemporary media technology and little or no exposure to obsolete media technology. As a result, students often make assumptions about old media based on new media, or try to apply the what they know of contemporary cultural contexts to understand the cultural contexts of old media. In both cases, students miss key aspects of how old media formed important parts of their particular cultures.

DESIRED OUTCOMES	GAPS
Nuanced understanding of the cultural context of particular media use	Students tend to misinterpret the contexts of old media use according to what they know of new media (e.g., assuming that communication has always been fast and networked)
Well-developed assessment of what a particular medium makes possible, what it requires, and what it limits	Students tend to apply the affordances of new media to old media (e.g., assuming that page formatting could be done automatically before word processors). In addition, many students think of media as progressive, so that new media do what old media did, only better, and that the skills required to use new media equip students to successfully use old media.
High level of student engagement/participation when learning about history	Lecture and reading are the primary means of addressing the past; students miss the kinesthetic and multi-sensory experiences they can have when studying contemporary cultures.
A strong sense of what cognitive processes are involved in a particular medium; that is, what sort of thinking is needed to engage a particular medium.	Students assume that the same sort of thinking they use with new media applies to old media (e.g., applying the thinking needed for use of a calculator application to use of a slide rule)

<p>sort of bodily activities and capacities are needed to engage a particular medium</p>	<p>required little physical strength before automatic photocopiers)</p>
<p>A strong sense of what physical processes are involved in a particular medium; that is, what</p>	<p>Students assume that the dissemination of information occurred at the same speed, to similar numbers of people, and with little physical demand as it does today (e.g., assuming that publication of pamphlets</p>

## **What teaching and technology interventions will close the learning gap(s) you have identified and help students achieve the desired learning outcomes?**

The HOTLab provides a number of important teaching interventions:

1. Immersive multi-sensory experiences allow students to learn with multiple senses in enduring ways. Students understand historical contexts not just through texts but through touch, smell, sight, and sound. For example, students learning about the pre-history of computing do not just learn what typewriters are, they learn how cacophonous a typing pool could be, how much hand strength was required, how much of the page formatting was done by sight, and the challenges of typing without automatic corrections.
2. Media use to complete an activity clarifies what a particular makes possible, what it requires, and what it limits. For example students using a home computer from the 1980s quickly learn about the time it took to load a program, the limits of small storage available on floppy disks, and the limits of non-networked computing.
3. The HOTLab facilitates play and experimentation with working old media, thus encouraging high levels of participation, intellectual risk-taking, and creative engagement.
4. Students often assume that technological capacities of today apply to the past; direct engagement of old media gives them a rich sense of the cognitive processes old media required. For example, in a math class, calculating with slide rules requires different kinds of mathematical knowledge than using an app on their phones.
5. The dynamic experience of using obsolete media adds a critical kinesthetic element that cannot be communicated by lecture or reading alone and offers a strong sense of the physical labor, time and skill involved in media use. For example, students learning about social movements feel how much time and sweat printing 100 mimeographed posters takes, and thus how much commitment to a cause was required.

The specific courses interested in using the HOTLab and their particular technology needs are listed below. From conversation with the instructors, I have listed the prioritized pedagogical intervention although each instructor is generally interested in all of the interventions listed above. See attached PDF

## **How will you demonstrate that your goals have been accomplished?**

HOTLab participation will be conducted in small groups as part of existing classes. Each participating student will be asked to answer a short online self-assessment about the learning outcomes listed above as well as the logistics of using the lab. Participating instructors will be asked to fill out a short online questionnaire to assess whether the lab met their teaching goals.

## **What will you need?**

The HOTLab has a space in the Becker Communication Studies Building and already comprises a number of old media (including an Apple IIe computer, 3 typewriters, a telegraph key, a reel-to-reel projector, and a video camera).

Most of these machines were acquired by donation, and a few were purchased using a small departmental grant. The HOTLab is not currently funded.

We need additional old media to meet the course needs listed above, software and supplies to use the media, and 20 hours over the year for student employee(s) to set up the machines, write instruction sheets, and design educational activities for the machines. The specific machines are listed in the question below.

### **What is your rough estimate of costs?**

Category Item Estimated Market Price

#### Hardware

1 Morse telegraph key \$200

2 telegraph registers \$1,000

Typewriter, manual \$100

Typewriter, electric \$100

Quincunx \$800

Slide Rules (20) \$600

Mimeograph \$150

Button maker \$150

Reel-to-reel tape recorder \$200

Commodore 64 \$500

Powerbook 140 \$100

1190s Macintosh \$300

PowerMac \$500

Cables, various \$200

TOTAL \$4,900.00

#### Software

Computer, various, based on availability \$500

Magnetic tape \$300

Telegraph paper \$100

Typewriter Ink \$100

Mimeograph ink \$100

Button supplies \$100

TOTAL \$1,200

Support

Technical Support (10 hours) \$300

Pedagogical Support (10 hours) \$300

TOTAL \$600

TOTAL \$6,700

