



# Literature Review: Technology Investment Needs of Students and Faculty at Community Colleges

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## I. Overview

The purpose of this literature review is to examine existing research on the technology needs and wants of today's higher education students and faculty, particularly in community and technical colleges. Most of the research has been conducted under the auspices of EDUCAUSE, a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. Much of the research is based on surveys of university students and faculty; however, there is some specific to community colleges, and information relevant to this examination can be gleaned from virtually all of the research reported here, regardless of its origin.

## II. About EDUCAUSE

is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. Membership includes institutions of higher education, corporations serving the higher education information technology market, and other related associations and organizations.

Resources include:

- professional development activities
- applied research
- strategic policy advocacy
- teaching and learning initiatives
- online information services
- print and electronic publications, including books, monographs, and the magazines *EDUCAUSE Quarterly* and *EDUCAUSE Review*
- special interest collaborative communities
- awards for leadership and exemplary practices

Current membership in EDUCAUSE comprises more than 2,100 colleges, universities, and educational organizations, including 200 corporations, with 16,500 active members worldwide. In Washington, 39 members include 5 colleges and the State Board for Community and Technical Colleges, all of the public universities, numerous private universities, and various corporations including Microsoft, Ingeniux and RealNetworks.

### **III Summary of Literature Review Findings**

#### **Who are today's students and how do they learn?**

- Today's higher education students are diverse in their familiarization with and access to technology, particularly at 2-year institutions, and therefore have different sets of support needs.
- There is often a generational difference between students and faculty, as the average age of faculty in higher education is 50.
- Net Generation (born after 1982) students:
  - Grew up with technology and want to be connected
  - Gravitate toward group activity, are highly social, work in teams and want interactive learning (experiential) with instructors and peers
  - Want practical application of studies in a real-world context.
  - Multitask and want diversity in technology and media.
  - Respond quickly and expect rapid responses from instructors and excellent customer service from institutions
  - Are intuitive visual communicators so lecture-only learning is not satisfying
  - Learn best through exploration and discovery (experiential learning)
- Generation X and Baby Boomers::
  - Are less interested in the social aspects of learning and are therefore more satisfied with fully web-based courses because of convenience and flexibility
  - Are more satisfied with less interaction in courses.
- There are no significant ethnic or gender differences in technology ownership among students, but advanced technology use is driven by majors.

#### **What kinds of technology do students want?**

- Students want a learning environment with moderate amounts of technology aimed at supplementing instruction, and face-to-face interaction.
- Students believe IT improves learning, and want relevant (with real world application), interactive technology to improve convenience and collaboration and to better interact with faculty.
- Students want training on technology for themselves and for faculty
- High-school students considering 2-year institutions want online financial aid and tuition estimators more than any other online application.
- Students want cutting-edge customized software allowing them to do things faster.

#### **How is technology currently being used in higher education?**

- Most of today's students are tech-savvy, but a technology "underclass" exists where low-income students cannot afford computers, particularly at 2-year institutions.
- Most college students today have computers and less than 10% rely on dial-up internet access, except at 2-year institutions, where 15% rely on dial-up.
- 2-year institutions are more aggressive in offering online classes.

- Technology use in higher education is controlled by instructor preferences and teaching and IT skills.
- Many institutions are adopting digital tools such as podcasts, blogs, wikis and virtual simulations and digital games to supplement classroom content, enhance collaboration and provide visual and real-world learning.

### **Are Course Management Systems (CMS) successful?**

- CMS are used primarily in face-to-face courses and rarely in online courses.
- Students in 2-year colleges are less likely to have used CMS than in 4-year institutions.
- 76% of students who have used CMS report positive experiences, and students want instructors to use CMS more extensively and consistently.
- Faculty primarily use “static” tools in CMS, although students report that the dynamic tools contribute most to their learning.
- Faculty believe CMS reduces their control of instruction and some are reluctant to adopt CMS for fear of constant change in the technology.
- Current CMS programs are weak in measurement ability.

### **What are some other examples of successful technology uses in higher education?**

- Online personal assistants to help students gain critical information.
- Online financial aid applications that link to federal sites and participating lenders so that students submit relevant information only once.
- “Beep a tutor” programs and technical help desks to answer students’ questions and resolve technical issues.
- Interactive web sites to examine authentic records and information about actual historical events.
- Simulations of real-world activities.
- Virtual labs with devices for experiments that can be accessed 24x7.

### **What are recommendations for technology considerations found consistently in the literature?**

- Invest in wireless coverage throughout campuses.
- Start slowly with easy to learn and implement technologies.
- Identify and share best practices.
- Help mitigate the high cost of new technology by sharing costs between institutions, leveraging resources system-wide, and using common tools that can be personalized by course.
- Measure and assess faculty IT competencies, and provide training and professional development for faculty, conducted as much as possible by peers.
- Use CMS tools in a standardized manner.
- Measure and assess student competencies, and provide training for students.
- Provide adequate staff for around the clock support.
- Design learning spaces to accommodate teamwork.

# **IT Custom Applications Baseline Survey**

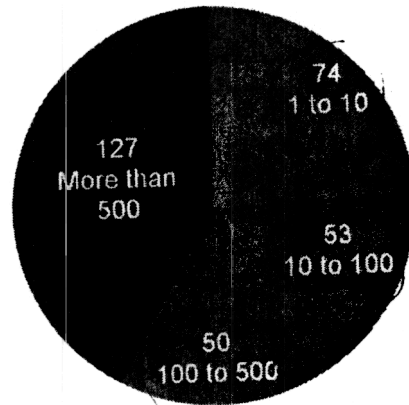
WHAT WE ASKED FOR . . . . .

- ▣ Custom applications either completed or planned
- ▣ Developed in-house by a college or consortium of colleges

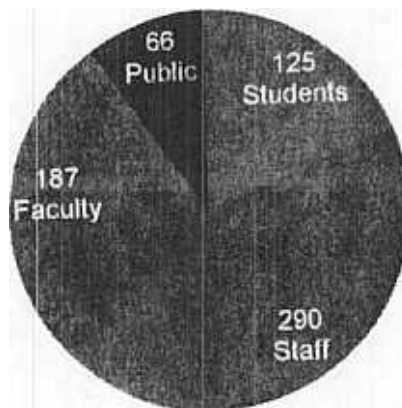
## **Some Applications Highlights**

- ▣ 261 Existing Applications
- ▣ 43 Planned or Under Development
- ▣ 269 Web-based
- ▣ 277 Developed Solely In-house
- ▣ 27 Developed Jointly with Other Colleges
- ▣ 11 Colleges have developed none

## Number of Users by Number of Applications



## Types of User by Number of Applications



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