



Fostering a Technology Cultural Change: The Changing Paradigms at the University of Minnesota Crookston

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INTRODUCTION

Many people in higher education wonder where the rapid changes in information technology are going to take them. Many more fear that the ongoing information technology explosion may eventually leave them behind. Due to entrenched mindsets and bureaucracy in higher education, fostering a technology cultural change requires paradigm shifts in all areas of administration, teaching, and research. A fundamental paradigm shift must happen in four areas before a technology cultural change can be set on a forward path.

This chapter focuses on four essential components of a paradigm shift in technology and higher education at the University of Minnesota Crookston (UMC). This case describes how a paradigm shift model can help to promote a long-term technology cultural change in a higher education institution. The model consists of technology commitment, technology philosophy, investment priority, and development focus. It has been used at UMC to bring about a reengineering of the entire institution to support a ubiquitous laptop environment throughout the curriculum and campus. The model has helped UMC achieve an overwhelming success in utilizing laptop computing and other technology to enhance learning.

CASE QUESTIONS

- Who is ultimately responsible for a technology cultural change in an institution of higher education?
- How does the institutional technology climate support or discourage the use of technology to enhance learning?
- What are the difficulties in integrating computer technology into curriculum?
- What types of strategies can be used to help faculty become more comfortable with computer technology?

CASE NARRATIVE

Background

Located in the fertile Red River Valley in Northwestern Minnesota, the University of Minnesota Crookston (UMC) is the fourth and youngest campus in the University of

Minnesota System. UMC became a four-year college in 1993. Surrounded by rich farmlands, UMC provides technology resources to enhance the regional economy and labor force. It produces technology-oriented graduates sought after by regional, state, and national businesses and corporations. UMC's location in the farming region of the Red River Valley has played a vital role in supporting the use of technology to create alternate delivery of courses and degree programs.

The University of Minnesota Crookston has numerous degree programs in Agriculture and Natural Resources, Arts and Sciences, and Business and Technology. Its technology implementation is supported by the Computing Services, Media Resources, Computer Help Desk, Instructional Technology Center, and Web Team units. In general, faculty at UMC have accepted that technology will become an inseparable part of teaching and learning in the classroom, and have responded well to computing and courseware training. Administrators and other staff at UMC have adopted the Web environment for daily communication and operation. In short, the organizational climate at UMC is structured to be supportive around issues of technology that can be used to enhance learning.

From the start, the UMC administration moved toward a technology-based position. In 1993, when it first became a four-year college, it immediately determined to have a ubiquitous laptop computing environment. The University requires and issues laptop computers to all its students. As the first laptop university in the nation, UMC has become a national showcase in ubiquitous laptop computing. Hundreds of delegations from across the nation and around the world came to learn about ubiquitous laptop implementation.

UMC also did away with middle layer bureaucracy and empowered working groups and committees to make decisions and execute various operations without further consultation. The total commitment to technology from the very top was the major step of embarking on a sweeping technology cultural change at UMC. Since the changes happened so quickly, faculty support and training was quite haphazard. The early adopters among the faculty did use the laptop environment for some limited learning applications. Most faculty, though, felt that the technology initiative was an added burden. The challenge of motivating and training the rest of the faculty to incorporate laptop technology into classroom teaching took center stage.

The challenge faced by the University of Minnesota Crookston was how to take full advantage of the ubiquitous computing infrastructure and have 100 percent of the faculty using the technology to enhance learning. A technology cultural change needed to take place among top management, technology personnel, faculty, and staff.

Technology Culture: A Model for Change

The technology cultural change model has embedded within it four distinct paradigms that must shift simultaneously in order to enhance learning. The four changing paradigms are technology commitment, philosophy of technology, investment prioritization, and development focus. The four paradigms must shift together dynamically, meaning that stagnation in any one paradigm shift may affect the other three, potentially crippling the positive impact on learning.

Paradigm 1: Technology Commitment

If technology is going to change education the way it has changed workplace and lifestyle, it is imperative that a total commitment is made to involve and infuse technology into the curriculum. Educational technology as an add-on to the university budget is not

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