Ubiquitous Mobile Computing: A Foundation in the Academic Infrastructure

Abstract: Learn how students benefit from ubiquitous mobile computing, and how it influences the academic environment. A panel will provide different perspectives on how the laptop computer has influenced the learning environment. Presenter explanations and video documentaries will illustrate student use of mobile computing and associated technologies. Examples include classroom activities, hybrid learning, and digital portfolios.

Justifying a ubiquitous mobile computing program is a complex cost/benefit proposition. Without specific examples of academic applications, the educational benefits may be hard to comprehend or imagine. Presentations by three faculty members at Valley City State University will provide practical examples of the benefits to the teaching and learning process.

Valley City State University deployed the ubiquitous mobile computing model in 1996 in an effort to improve teaching and learning. Targeted faculty development and faculty dedication to student learning have resulted in an educational environment that is highly dependant on mobile computing and associated technologies.

The following is a list of major activities enabled by ubiquitous mobile computing: 1) The “Eight Abilities” consist of faculty defined goals that take the curriculum beyond simply conveying cognitive knowledge. Promotion of the Abilities demands student participation and active learning environments. Survey research indicates that ubiquitous mobile computing fosters an active learning environment. For example, 78% of students indicate the notebook computer is valuable to learning during class. VCSU recently developed a web database application that helps manage the volume of projects associated with demonstrating and documenting achievement within the Abilities. 2) Hybrid learning consists of combining the advantages of online learning with traditional seat time. VCSU implemented online course management (OCM) software in 1999. Today over 60% of the students each semester are enrolled in a course that utilizes OCM software. The application of OCM is on a continuum from a course content and discussion organizer, to a method of replacing some seat time with online work, and finally, to a few fully online classes. In related survey research, 87% of the students feel the hybrid course experience fosters responsibility for learning and 71% feel that it contributes to effective communication. 3) The “Digital Portfolio” is a requirement for graduation at VCSU. Digital cameras, computer based assignments, notebook computers, and generous network data storage space allows students to build a personal warehouse of evidence that culminates in a reflective portfolio. The Portfolio must demonstrate selected Abilities for each discipline and it also serves as a tool for communicating skills to potential employers. 4) Other academic applications include the following: internet resources replacing text books, electronic text books, multimedia enhanced lectures, computer based laboratory simulations, connecting to peripherals from pianos to microscopes, video analysis from athlete motions to student speeches, and applying a software
particular to a discipline, i.e. Maple in mathematics. 5) General research, communication and distribution of
information and documents. For more information regarding local survey research, please reference
http://community.vcsu.edu/facultypages/kathryn_holleque/Surveys.htm

Ubiquitous mobile computing exists on dozens of campuses throughout the country. The potential of this model to
improve student learning is dependent on a long-term commitment to continuous improvement and the creative
application of technology within the educational environment. Several indicators point to the fact that VCSU has
achieved improvement in the teaching and learning process. Local survey research indicates that 92% of faculty and
students feel that the notebook computer environment enhances student learning. In May, 2002 the VCSU Teacher
Preparation Program received the Distinguished Achievement Award from the International Society for Technology in
Education (ISTE). ISTE is a leading organization in the use of technology in education. For more information about

This presentation will challenge participants to look beyond implementation logistics and costs to consider the
potential opportunities and educational goals that a ubiquitous mobile computing program can produce. The examples
from VCSU will help others create achievable visions and practical educational goals. For information about the
notebook computer initiative, please reference: http://itc.vcsu.edu/notebookinitiative/