

Case for Support

Technology in Education

For centuries, universities and their libraries have propelled the creation, dissemination, collection, and preservation of knowledge. Columbia University has long been the source for significant original contributions to the world of ideas, and has sought to accumulate and convey that intellectual heritage to future generations of students and scholars.

Until recently, the technology of the printing press, and the resulting pedagogical tools—books, periodicals, newspapers, and other documents—have dominated education. However, the computer has dramatically altered the landscape of teaching and scholarship. New possibilities—digital libraries, simulations, tools for analysis, authoring environments—have transformed the ways we create and access knowledge as well as instruct and study. Technology enables us to do things faster and more easily, but also enables us to do things we have never done before.

CCNMTL: Service, Expertise, and Partnerships

Columbia University has demonstrated its leadership in the area of technology through the creation and continued support of the Columbia Center for New Media Teaching and Learning. CCNMTL provides faculty with the necessary guidance and expertise not only to help them shift from the world of print to digital, but also to partner in leading the University into the expanded teaching, learning, and study possibilities of the twenty-first century.

Since its inception in 1999, CCNMTL has done extensive work with the faculties of all eighteen schools of Columbia University, laying a strong foundation to act as an agent of change in the reinvention of education in the digital age. To date, CCNMTL, which is a part of the University's Information Services Division, has collaborated with over 4,500 faculty clients, and has completed more than 200 large-scale projects. Projects vary in depth and complexity, leading to the creation of interactive and media-rich applications that provide students with convenient access to online course information, including customized content and selections from Columbia's Digital Library Collection. Developing partnerships with campus departments, institutes and other centers is a major focus of CCNMTL. These partnerships aim to leverage expertise in diverse fields and have led to numerous projects with impressive results.

The Center has fostered partnerships and new projects using three Strategic Initiatives defined as follows: The Triangle Initiative creates digital tools and capacities that simultaneously serve the intersecting interests of education, research, and the larger community; The Digital Bridges Initiative defines innovative pathways between digitized collections and the classroom; The Global Learning Initiative mobilizes the power of emerging network technologies to expand the collaborative efforts of the world's educational community. Link: <http://ccnmtl.columbia.edu/strategic/>

The Center's service philosophy is to provide the most supportive environment possible for faculty who invest their time and energy in using new media technologies for their courses. We attempt to create flexible tools and engaging study environments that faculty can shape to fit their particular classroom context.

The CCNMTL staff represents a wide range of backgrounds in the arts and sciences. An experienced team of educational technologists is ideally suited to offer advice and direction for faculty who wish to discover and develop best practices in the educational uses of new media. Their diverse expertise allows for productive engagements with faculty in many fields; what unites them is a dedication to creative uses of technology to attain educational goals. No faculty question or request is too small, no vision or dream too large.

CCNMTL assists faculty using CourseWorks @ Columbia, a course management system that allows faculty to easily update course information on the Internet. Using CourseWorks, faculty have the freedom to develop a basic course Web site on their own and work with CCNMTL to develop enhancements such as multimedia presentations and case studies. Faculty-led projects include a range of different approaches: visualization and modeling tools, real-time data collection tools, data sharing programs, annotation and study tools, media archives, training environments, simulations, and multimedia study environments. These tools enable in-depth focus on a specific object of study, such as a work of literature, performance, article, or artwork. Projects emphasize collaboration, interaction and student hands-on activity. They promote better communication, personalization and extension of classroom space and time, in which students are invited to study, research, and explore.

Examples of CCNMTL projects include:

- Video Interactions for Teaching and Learning (VITAL), a web-based training application developed for Teachers College and the School of Social Work. The environment allows pre-service teachers to view a digital video library of classroom observations and clinical

interviews and to construct multimedia essays incorporating references to the video library.

- The Film Language Glossary, an innovative teaching tool for the study of film, designed to enhance screenings, readings, lectures, and discussions throughout the duration of a course. It provides definitions of essential terms used in basic and advanced film courses that are representative of all the major categories of film studies: practical terminology, technical terminology, the language of business, and historical terms, as well as the language of criticism and theory. Sample film clips, images, and animations enhance each entry. Link: <http://ccnmtl.columbia.edu/projects/filmglossary/>
- Brownfield Action, a simulation created for the Barnard College Environmental Science Department, where students embark on an environmental investigation of a suspected contaminated site. The Association of American Colleges and Universities chose Brownfield Action as a national science curricular model in 2003.
- A multimedia resource focusing on the dramatization of Salman Rushdie's acclaimed novel *Midnight's Children*. This media-rich site provides students with the opportunity to gain a richer understanding of the historical and cultural context in which the story is set. The project, created for the Columbia University School of the Arts, sustains and enhances the educational impact of the theatrical production, mounted by Columbia, the University of Michigan, and the Royal Shakespeare Company; it provides a wealth of related content including scenes from the live performance, and reflections from Rushdie, Columbia faculty, and members of the Royal Shakespeare Company. Link: <http://ccnmtl.columbia.edu/projects/mmt/mc/>
- Virtual Techniques in Dentistry (VirTechs), a web-based dental laboratory manual provides students with access to detailed instruction on procedures and treatments. The VirTechs collection includes video demonstrations, instructions, and supplementary materials for learning the dental procedures that are covered in a student's preclinical and clinical studies. Link: <http://ccnmtl.columbia.edu/projects/virtechs>
- The Millennium Village Simulation, a web-based simulation of economics and survival for one family and their village in a sub-Saharan African village. In a virtual world of extreme poverty, disease, and environmental variability, students are challenged to help a family of two survive and prosper over a fifty-year period. By making decisions regarding the family's allocation of time and financial resources, students develop a greater understanding of the manifold disciplines – such as agronomy, nutrition, economics, epidemiology, public health and development management – that constitute sustainable development and how those disciplines interact with each other in "real world" scenarios. <http://millenniumvillage.ccnmtl.columbia.edu/>

Design Research

CCNMTL's project work is both practical and experimental. To that end, the Center engages in a process of design research. "Building to learn, learning while building" is the underlying philosophy, rooted in the notion that each of CCNMTL's projects represent a hypothesis about learning to be tested in the classroom. Through an iterative cycle of research, development, and assessment, CCNMTL and its faculty partners experiment with innovative uses of technology within university courses and create unique advancements in the field of new media teaching and learning. These assessments become the point of departure for refinement of both the projects themselves as well as the process of development. Once established as successful, a project or approach becomes part of the University's best practices and as such made available to all instructors.

Prospective Funding Opportunities

The Columbia Center for New Media Teaching and Learning has a number of different projects that present opportunities for individual, corporate, and foundation donors to invest in the future of the development and integration of technology into the University's course of study. Opportunities for giving include:

- Named support of the Center itself.
- Contributions toward the CCNMTL Endowment.
- Funding for the position of the CCNMTL Executive Director
- Funding for the position of CCNMTL Vice Executive Director and Director of Technology.
- Named support of the Butler Library Faculty Support Lab.
- Named support of the Experimental Digital Classroom.
- Named support of the Manhattanville Center building / offices.
- Named support of the Digital Media Studio.

Leadership

The Columbia Center for New Media Teaching and Learning, led by Frank Moretti and Maurice Matiz, is part of the University's Information Services Division, which also includes the University Libraries and the Center for Digital Research and Scholarship. These divisions fall under the leadership of James G. Neal, Vice President for Information Services and University Librarian.

Frank A. Moretti is co-founder of the Columbia Center for New Media Teaching and Learning, for which he provides pedagogical, strategic and managerial leadership. He also serves as Professor of Communications, Computing, and Technology at Teachers College. Prior to joining Teachers College, Frank served as the Associate Headmaster at the Dalton School, where he

was also co-founder and Executive Director of their New Laboratory for Teaching and Learning, and of the internationally known Dalton Technology Plan. He holds a Ph.D. in History and an M. Phil from Columbia University, an M.Ed. from Teachers College and a B.A. in Greek and Latin from St. Bonaventure University. Frank is recognized as one of America's leading theorists and practitioners in the use of digital technology in education.

A. Maurice Matiz is a co-founder and Vice Executive Director of the Columbia Center for New Media Teaching and Learning and currently plans and oversees its direction, focusing primarily on technical, design, and operational issues. He has been an advocate for technology change and innovation at Columbia. He has been instrumental in developing initiatives such as course management systems, collaborative environments, podcasting and media platforms, and social media tools to serve teaching and learning needs. Maurice participates in numerous university committees exploring technical directions at Columbia, while representing Columbia in various professional organizations. His interest in educational technology grew out of his decade-long stint as head of the Academic Technologies Group, then part of Academic Information Systems. Maurice has a B.S. and an M.S. in Computer Science from the School of Engineering and Applied Science at Columbia.

Prior to coming to Columbia, James G. Neal served as dean of the Johns Hopkins University Libraries (1998-2001), Sheridan Director of the Milton S. Eisenhower Library (1995-2001) and dean of the University Libraries at Indiana University (1989-1995). He has also held administrative positions in the libraries at Penn State, Notre Dame, and the City University of New York. Neal is a published researcher in the areas of scholarly communication, intellectual property, digital library development, organizational change, human resources development, and library fundraising. He served on the Board of Project Muse, the electronic journal publishing program at Johns Hopkins; on the advisory boards for the e-history book project at the American Council of Learned Societies and PubMed Central at the National Institutes of Health, and on the steering committee for SPARC, the Scholarly Publishing and Academic Resources Coalition. Neal has served on the Council and Executive Board of the American Library Association, on the Board and as President of the Association of Research Libraries, as Chair of OCLC's Research Library Advisory Council, and is currently Chair of the Board of Directors of the Research Libraries Group.