

DEDICATED TO THE PURPOSEFUL USE OF TECHNOLOGY IN EDUCATION

ABOUT US

The Columbia Center for New Media Teaching and Learning (CCNMTL) was founded in 1999 as a University-wide initiative with a mission to enhance teaching and learning through the purposeful use of new media. In partnership with faculty, we provide support for a range of efforts from constructing course websites to developing more advanced projects. CCNMTL is committed to remaining a leader in the field of new media teaching and learning, engaging with our faculty partners in the reinvention of education for the digital age.

Services

Our service philosophy is to provide the most supportive environment possible for faculty who invest their time and energy in utilizing new media technologies for their courses. Our Educational Technologists have extensive pedagogical training and are ideally suited to offer advice and direction for faculty who wish to discover and develop best practices in the educational uses of new media.

These efforts include support for a range of teaching technologies including CourseWorks, the University-wide course management system, Columbia Wikispaces, EdBlogs, podcasting and media creation and distribution, and more. CCNMTL offers a variety of workshops for instructors who wish to master teaching technologies or incorporate multimedia resources into their courses. A current list of workshops is available at <http://ccnmtl.columbia.edu/events/workshops>.

Project Development

CCNMTL projects are defined as more extensive efforts in which we attempt to create flexible tools and engaging study environments that faculty can shape to fit their particular pedagogical goals. CCNMTL projects start with a project proposal from faculty. Our proposal form is available at http://ccnmtl.columbia.edu/our_services.

All CCNMTL projects focus on overlapping areas of innovation to support student inquiry and improve students' understanding. Our projects include visualization and modeling tools, real-time data collection and mapping tools, data-sharing programs, annotation tools, media archives, training environments, simulations, and multimedia study environments. Projects emphasize collaboration, interaction, and activities that develop research skills and promote better communication among faculty and students.

Strategic Initiatives

Since its inception, CCNMTL has gained valuable insight and experience by developing hundreds of projects and working with more than 4,000 faculty to advance the purposeful use of technology in education. We now combine this experience with current breakthroughs in digital communication technologies to extend the scope and reach of our work. CCNMTL's strategic initiatives focus on the integration of digital technologies and media in education with full cognizance of the world's problems and promise.

Design Research

Design Research is the underlying philosophy of our efforts, supporting the exploration, development and application of digital technologies to enhance education at the University. Through an iterative cycle of research, development and assessment, CCNMTL and its faculty partners experiment with innovative uses of technology within university courses and generate advanced knowledge in the field of new media teaching and learning.

Partnerships

CCNMTL is a part of the University's Information Services Division, which also includes the University Libraries and the Center for Digital Research and Scholarship. CCNMTL forms strategic partnerships with departments, institutes, and other centers both on campus and beyond in order to leverage expertise in diverse fields, and we have garnered awards and grants for many of our projects.

Throughout the year, CCNMTL brings leaders in educational technology to campus for events including the University Seminar in New Media Teaching and New Media in Education conference.

[HTTP://CCNMTL.COLUMBIA.EDU](http://CCNMTL.COLUMBIA.EDU)

The Columbia Center for New Media Teaching and Learning has locations in 204 Butler Library, 535 West 114th Street, Mail Code: 1130, New York, NY 10027 and at the Health Sciences campus in the State Armory at 216 Ft. Washington Avenue, 2nd Fl., New York, NY 10032.

Our facilities are open Monday through Friday from 9:00 A.M. - 5:00 P.M., and can be reached at 212.854.9058.

Discovering CCNMTL Services

In partnership with faculty...

The Columbia Center for New Media Teaching and Learning (CCNMTL) was founded in 1999 to enhance teaching and learning through the purposeful use of new media. The Center supports Columbia faculty in efforts ranging from basic course website management to advanced project development. CCNMTL also extends the scope and reach of its work with strategic initiatives that engage educators, researchers, librarians, partner institutions, and the community in the reinvention of education for the digital age.

CourseWorks is Columbia University's course management system that provides course-specific websites for instructors and students. Every CourseWorks site includes pre-populated course information provided by the Columbia University Registrar's Office, as well as organizational and administrative tools for instructor use. CourseWorks can be used to distribute course materials and assignments, conduct online discussions, and present media clips. Get started with CourseWorks at <http://courseworks.columbia.edu>.



Columbia Wikispaces and Wikischolars are the University's wiki solutions available for teaching or research. Wikis are collaborative websites that allow users to create, modify, and link web pages without knowledge of complex web authoring technologies. Columbia Wikispaces provides a UNI-protected wiki environment to any course at Columbia University. Wikischolars is designed for Columbia's research community to conduct scholarly collaborations and data-sharing. Wikischolars does not require a UNI for membership and wikis can be made publicly accessible. Learn about wiki options at <http://wikispaces.columbia.edu>.

**COLUMBIA
WIKISPACES &
WIKISCHOLARS**

EdBlogs@Columbia provides a blog for every course at Columbia University. Blogging can be used as a journaling platform, as a course newsletter, or as a way to explore course-related texts or events. EdBlogs uses familiar online editing tools to add and edit text and images, so it's easy to create, update, and revise posts. Every blog is set up with a simple template that accommodates most course needs, including blogging, journaling, or even a simple course website. Instructors are also able to customize the templates to suit specific course requirements. Learn more about EdBlogs at <http://edblogs.columbia.edu>.

**EdBlogs@
Columbia**


Columbia University's channel on YouTube EDU provides students, instructors, and the public with direct access to educational videos and video-based course content. CCNMTL Educational Technologists assist faculty in developing thoughtful, pedagogically-focused video materials for Columbia courses that can be distributed through Columbia's YouTube channel. Visit <http://youtube.com/columbia> to view YouTube EDU.



Columbia on iTunes U delivers Columbia-produced educational content to students, instructors, and the public through Apple's popular iTunes Store. Audio and video podcasts are easily downloaded to personal computers, iPods, or iPhones, providing 24/7 access to recordings of lectures, seminars, and events. CCNMTL assists faculty and administrators with Columbia on iTunes U. Learn more at <http://itunes.columbia.edu>.



CCNMTL supports faculty in the production and distribution of audio and video files. Faculty can create media files using the Podcasting Station located in the Faculty Support Lab. This station comes equipped with a microphone for high-quality recordings and headphones for careful audio and screencast editing, and an educational technologist is always available for support. CCNMTL also offers consultations on media services and media processing. Learn about educational media at http://ccnmtl.columbia.edu/our_services/tools.

**Podcasting &
Media**   

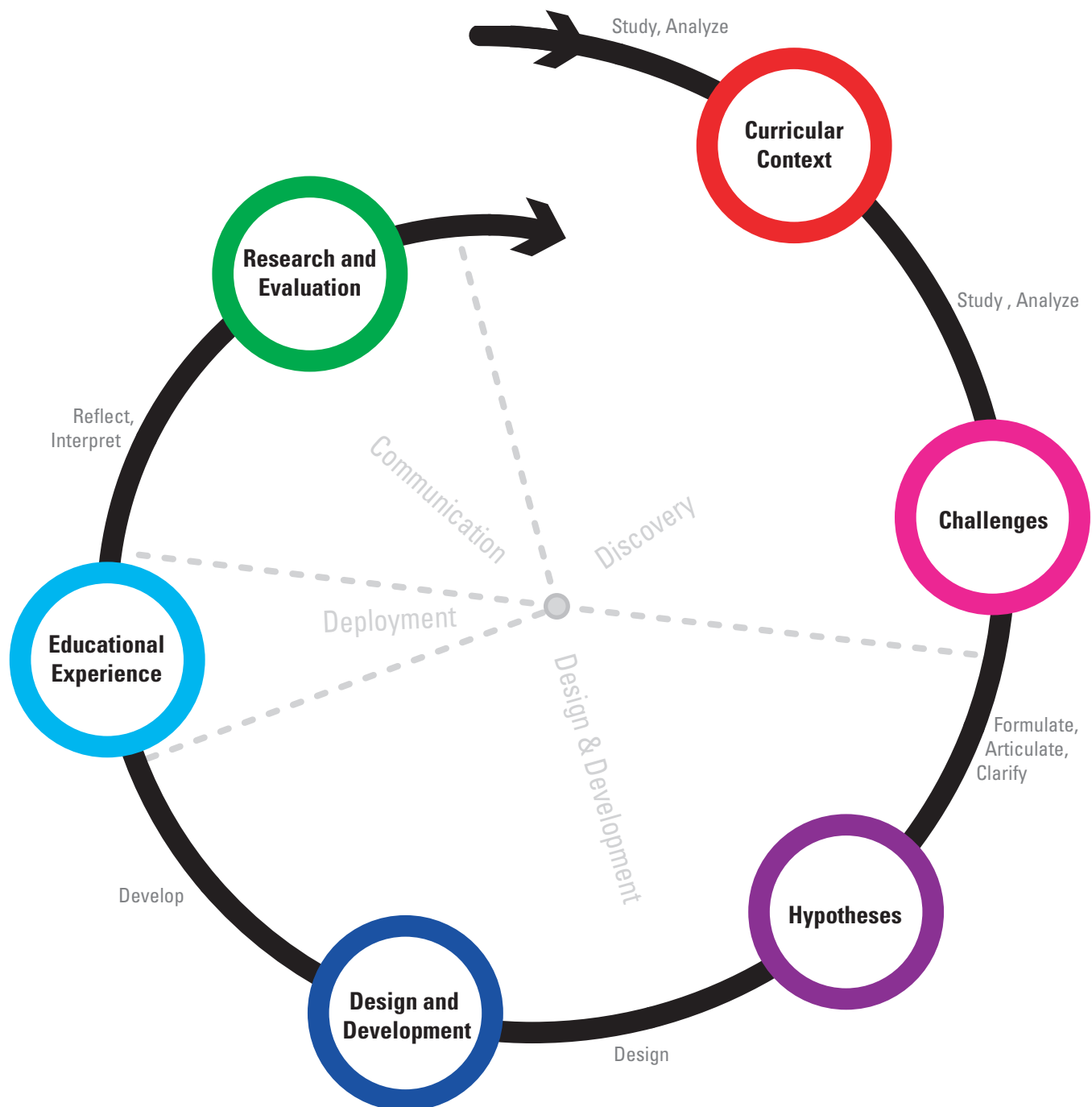
To learn more about CCNMTL's services or to get started with teaching tools at Columbia, visit our Faculty Support Lab or schedule a consultation with a CCNMTL educational technologist.

Faculty Support Lab
204 Butler Library, Morningside Campus
535 West 114th Street, MC 1130
New York, NY 10027
Web: <http://ccnmtl.columbia.edu>

DESIGN RESEARCH PROCESS

CCNMTL is a unique service enterprise that both creates new tools for teaching and learning and researches their implementation. Design Research is the underlying philosophy of our efforts, supporting the exploration, development and application of digital technologies to enhance education at the University.

Through an iterative cycle of research, development and assessment, CCNMTL and its faculty partners experiment with innovative uses of technology and generate advanced knowledge in the field of new media teaching and learning.



STRATEGIC INITIATIVES

Since 1999, the Columbia Center for New Media Teaching and Learning has gained valuable insight and experience by developing hundreds of projects and working with more than 3,500 faculty to advance the purposeful use of technology in education. We now combine this experience with current breakthroughs in digital communication technologies to extend the scope and reach of our work. CCNMTL's strategic initiatives focus on the integration of digital technologies and media in education with full cognizance of the world's problems and promise.

global learning initiative

The Global Learning initiative mobilizes the power of emerging network technologies to expand the collaborative efforts of the world's educational community. Global Learning projects take advantage of the distributed locales of its participants, leveraging diverse on-the-ground expertise in order to create common understandings, skills, and professional practices that address the prevailing dilemmas of the global community. Learn more about the Global Learning Initiative at <http://ccnmtl.columbia.edu/globallearning>.



Jeffrey Sachs presents the Global Classroom, a project within the Global Learning Initiative.

TRIANGLE INITIATIVE

digital tools for education, research & community

The Triangle initiative creates digital tools and capacities that simultaneously serve the intersecting interests of education, research, and the larger community. By creating new economies of development, the positive effects of research and education are magnified in the interest of communities in need. Learn more about the Triangle Initiative at <http://ccnmtl.columbia.edu/triangle>.



Triangle Initiative partner, Susan Witte, and CCNMTL educational technologist, Jessica Rowe, collaborate on Project Connect.

DIGITAL BRIDGES

Connecting Digital Collections to Innovative Study

CCNMTL's Digital Bridges initiative works in partnership with Columbia faculty and librarians to bring students into exemplary engagements with digital collections. Digital Bridges learning environments promote active, hands-on use of digitized materials from Columbia University Libraries collections, audio and video resources at Columbia and beyond, digital libraries and databases, public educational resources, and faculty- and student-generated content. Learn more about the Digital Bridges Initiative at <http://ccnmtl.columbia.edu/digitalbridges>.

<http://ccnmtl.columbia.edu/strategic>

For more information about CCNMTL strategic initiatives, please contact:

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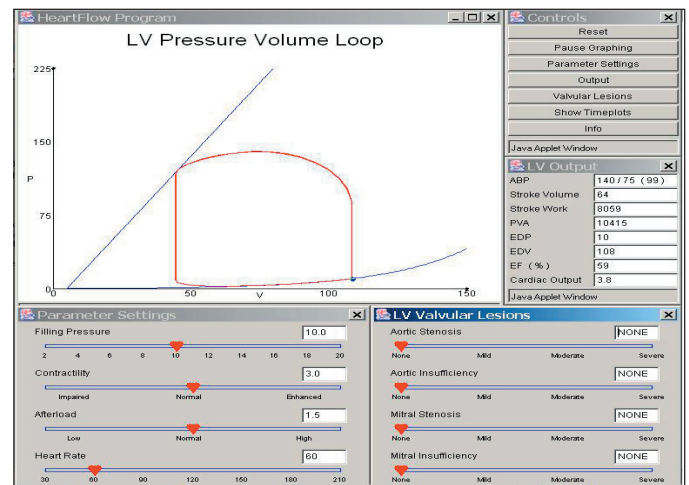
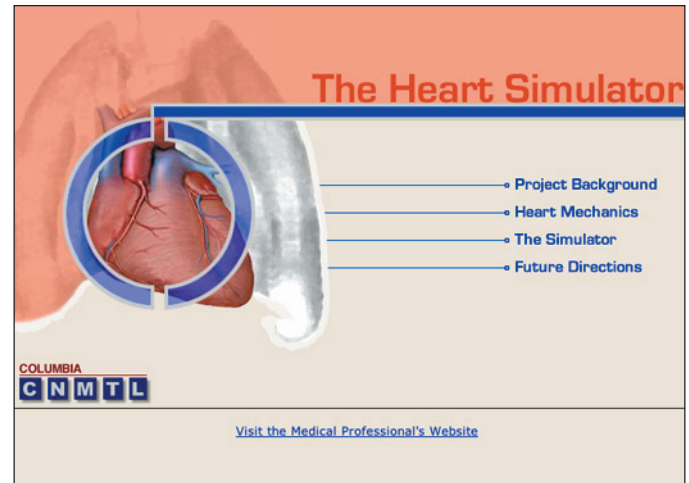
FEATURED PROJECT: THE HEART SIMULATOR

The Heart Simulator is based on the work of Dr. Daniel Burkhoff and Dr. Marc Dickstein from the College of Physicians and Surgeons. This Java-based program is being used to augment class presentations and provide exercises and experiments for first-year medical students to try independently online. In addition, advanced students and researchers can use the tool to design and run their own experiments.

The Heart Simulator models the pressure-volume relationships of the cardiovascular system, plotting the values for the various compartments of the heart in real-time. Numerous parameters can be manipulated to simulate various conditions and pathologies useful for the teaching and learning of heart physiology. For example, students are asked to manipulate clinically relevant parameters such as blood volume, heart rate, or vascular resistance and study how they affect overall cardiovascular function such as systemic blood pressure or cardiac output. Used in the core physiology course, Sciences Basic to the Practice of Medicine and Dentistry, the simulator is used to present concepts in class and to provide students with online exercises where they can explore results giving them greater insights into heart mechanics.

In its main window, as shown at right, the Heart Simulator models the relation between pressure and volume in the left ventricle, the largest chamber of the heart. Separate windows present other cardiac measurements (heart rate, vascular resistance, and muscle contractility), which the user can manipulate onscreen to simulate conditions, pathologies, and treatments. The shape and movement of the main graph (the pressure-volume loop) immediately reflect changes in these variables, giving an integrated view of how each factor affects the others. Users can observe results, answer questions, refer to related course material, and conduct complex experiments under conditions that could not be replicated in a living patient without unacceptable risks. Replacing static study with dynamic interaction, the Simulator has won praise from faculty and students as a means of deepening and accelerating students' understanding of cardiac function and dysfunction.

Dr. Dickstein discussing his use of simulator as a teaching tool said, "rather than simply describing important relationships, I could demonstrate them. And rather than simply reading about important principles, students could discover them for themselves."



The Heart Simulator program is designed to accommodate further enhancements, including data output to spreadsheets and other analytic programs, scripting of more complex time-dependent clinical problems, and study of a wider range of conditions, including pharmacologic effects. Plans are in place for further progress on two fronts, developing an expanded version of the Heart Simulator and extending the knowledge gained in this project to a wider family of Physiologic Simulators representing different organs and systems of the body. By adding the temporal dimension and the element of multivariate interactivity to the teaching and learning process, these tools integrate, amplify, and focus the knowledge gained through conventional curricular formats, helping students develop and refine the skills required by a sophisticated physician.

FEATURED PROJECT: VIRTECHS - VIRTUAL TECHNIQUES IN DENTISTRY

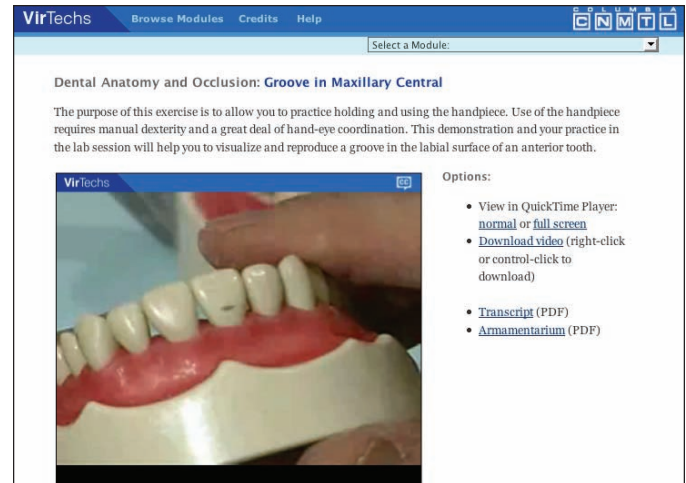
CCNMTL and the College of Dental Medicine have collaborated to create Virtual Techniques in Dentistry (VirTechs). This interactive Web-based dental laboratory manual provides students with access to detailed instruction on procedures and treatments. The VirTechs collection includes video demonstrations, instructions, and supplementary materials to support learning of dental procedures. These demonstrations support the pre-clinical and clinical curricula, but residents also find the videos to be a useful review resource. Currently, there are videos in the following subjects: Dental Anatomy and Occlusion, Pediatrics, Endodontics, and Operative Dentistry.

There is a clear need for novice dental students to build a framework of basic skills before carrying out surgical procedures on patients. But the difficulties posed in actual demonstration of clinical procedures in class have always been formidable, especially in large class settings where one instructor demonstrates to the entire class. The small size of mouth and dental models makes it challenging to capture clear visuals, so the production team used special photography and videography techniques in order to capture clear close-ups of each procedure.

This multimedia video repository allows for self-paced study and can potentially increase overall student achievement. Demonstrations that can be difficult to follow in a laboratory setting are now available on the Web for ready and repeated access.

VirTechs not only enables students to learn and practice dental procedures at their own pace, it also makes efficient use of faculty time while serving as a useful pedagogical complement to basic skills training. Instructors are able to dedicate more classroom time to discussion and individualized support.

VirTechs introduces new approaches in video technologies to offer a personalized learning experience. Students can view videos online, download the video files to their personal computers, or access the VirTechs video podcast. Text captions and video chapters allow for greater control and self-pacing during study. To supplement the videos, each procedure features an audio transcript, descriptions of the armamentarium – with color pictures of the instruments – and other study guides.



Video demonstrations of procedures are supplemented with transcripts and additional links to support the preclinical and clinical curricula at the College of Dental Medicine.



The videos are made available on the Web site or as video podcasts that can be downloaded to students' iPods.

To assess the effectiveness of VirTechs, CCNMTL employs both formative and summative evaluation techniques, including usability testing, focus groups, and student and faculty questionnaires. Student evaluation of VirTechs confirmed that the online videos enabled them to pace their learning, thereby promoting greater flexibility and independence.

FEATURED PROJECT : GLOBAL CLASSROOM



The Global Classroom project organizes and delivers lectures and readings for a master's level, sustainable development course simultaneously taught at a dozen universities around the world. Conceived as a new distributed learning curriculum by the Earth

Institute's Commission on Education for International Development Professionals and CCNMTL, the Global Classroom project engages diverse bodies of students in a live discussion with a Commissioner lector about some of the world's foremost issues in sustainable development.

Global Classroom is offered at Columbia University through the course, "Integrated Approaches to Sustainable Development Practice," which students may take for credit at the School of International and Public Affairs. John McArthur, associate director, Center for Globalization and Sustainable Development at Columbia University, and Jeffrey Sachs, Quetelet Professor of Sustainable Development and professor of Health Policy and Management and director of the Earth Institute, are co-chairs of the course.

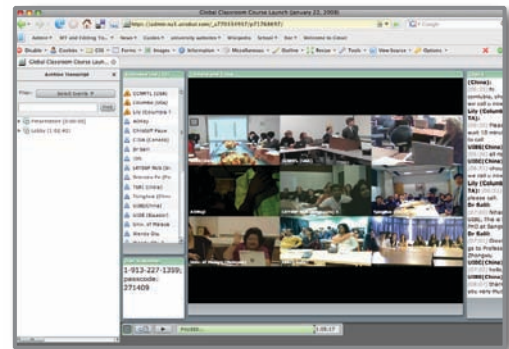
Throughout the semester, local course facilitators and instructors draw on common syllabi and videotaped lectures, reading assignments, and other resources available through a "super site" course management system developed by CCNMTL. To enhance collaboration and information sharing, students listen to videotaped lectures outside of class, and use class time to engage with lecturers in an online seminar. Students and instructors are also provided with a Web-based environment, including an online forum, to encourage cross-institutional discussion and collaborative assignments.

"The idea is simple yet profound," said Sachs. "By integrating taped lectures and live Web-based discussions, the classes bring together students in a dozen universities around the world, to help forge a new discipline of sustainable development. The span of schools is phenomenal, reaching beyond the United States to include campuses in Europe, Africa, South America, South Asia, and East Asia. The Global Classroom provides the opportunity for expert lecturers and diverse bodies of students to hold a real-time discussion on the world's foremost problems of sustainable development so that together they, and we, can brainstorm on solutions."

Sustainable development is a worldwide responsibility and through online meeting rooms, video, live chat, and discussion boards, the Global Classroom project provides a truly global academic setting



Project partner, Jeffrey Sachs, gives a lecture for the Global Classroom project.



The Global Classroom Web interface allows students from around the world to interact online.

where students in a dozen universities can learn and explore the relationship across core fields of study in agriculture and nutrition; economics; environment and climate science; management; policy, anthropology and social studies; public health; technology and engineering. In 2008, students and instructors from institutes of higher learning in the United States, the United Kingdom, China, India, Singapore, France, Ethiopia, Ecuador, Nigeria, and Malaysia participated in the Global Classroom project.

Global Classroom is the flagship project of CCNMTL's Global Learning initiative, a strategic effort that mobilizes the power of new media technology to expand collaboration among the world's educational community.

MediaThread

<http://ccnmtl.columbia.edu/mediathread>

What is MediaThread?

MediaThread is a collaborative multimedia analysis environment where you can:

1. Collect videos and images from pages and collections across the web,
2. Create clips or segments of videos and images, write notes, assign tags, and save to a personal collection,
3. Compose “multimedia essays” and participate in discussions in which your selected materials can be embedded to support an analysis or argument, and
4. Collaborate with others on all of the above.

Overview

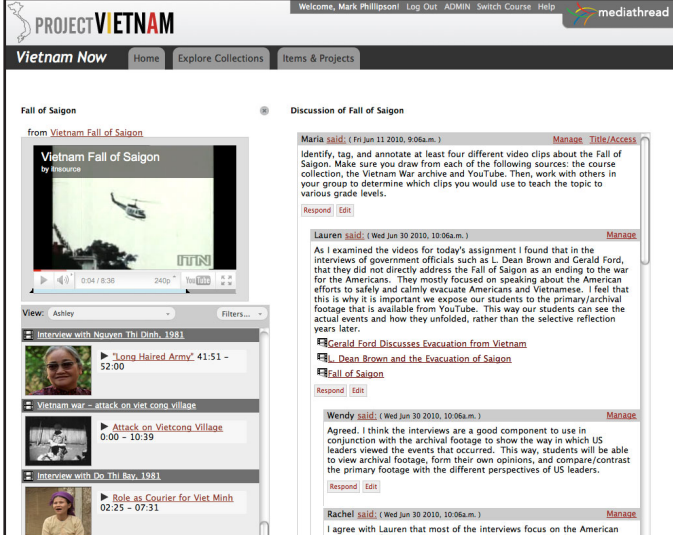
MediaThread is CCNMTL’s innovative, open-source platform for exploration, analysis, and organization of web-based multimedia content. MediaThread connects to a variety of image and video collections (such as YouTube, Flickr, library databases, and course libraries), enabling users to lift items out of these collections and into an analysis environment. In MediaThread, items can then be clipped, annotated, organized, and embedded into essays and other written analysis. Work in MediaThread can be shared with classmates or larger audiences, requiring students to formalize thinking, clarify interpretations, and improve arguments with evidence. A customized home page helps students track work being done by their classmates on shared items and projects. Instructors may also publish announcements, assignments, and model projects to the home page.

Educational Objectives

For thousands of years, critical and scholarly discourse about text has revolved around citation and reference. What might this kind of discourse look like for multimedia—web-based text, images, audio, and video?

MediaThread encourages students to engage critically with the materials they are studying. Its seamless clipping and annotation tools “bring the laser pointer to the essay.” In other words, rather than simply referencing an image or video and describing the content in an essay, students can embed the source directly in their essay and let the reader view evidence immediately, without disturbing the flow of analysis. With MediaThread, students can embed assets from publicly available or, in some cases, protected collections and sources into a single project, without requiring advanced technical skills.

Students’ annotations and analyses can also be shared with classmates or larger audiences, spurring formalized thinking, clarified interpretation, and arguments improved with cited evidence. A customized feed alerts students to the latest activity on analyzed items and updates on group projects. Instructors can also publish announcements, assignments, and model projects to the class home page.



The screenshot shows the Project Vietnam MediaThread interface. On the left, there is a video player for 'Vietnam Fall of Saigon' with a progress bar and controls. Below the video, there are several video thumbnails with titles like 'Interview with Nguyen Thi Dinh, 1981', 'Long Haired Army', 'Vietnam war - attack on viet cong village', 'Attack on Vietcong Village', and 'Interview with Do Thi Bay, 1981'. On the right, there is a discussion thread titled 'Discussion of Fall of Saigon'. The thread includes a post by Maria from June 11, 2010, and a response by Lauren from June 30, 2010. The discussion involves identifying, tagging, and annotating video clips about the Fall of Saigon.

Students in the course Vietnam Now! use MediaThread to analyze video and images from the landmark 1983 documentary Vietnam: A Television History hosted in the WGBH Open Vault archive.

How MediaThread Works

MediaThread requires the simple installation of a web browser “bookmarklet,” which, when clicked, tells the browser to import an image or video from the current page into the MediaThread analysis space. Assets imported into MediaThread are served from their original source. These assets are referenced (not copied) by MediaThread, enabling flexible interoperability and avoiding complications with access and licensing.

Explore Collections: Members of a course, once logged into MediaThread, have access to collections and materials designated by their instructor. These collections can range from library databases to course-specific media to web resources such as YouTube and Flickr. Students browse designated collections, identify items for analysis, and import items into MediaThread using the bookmarklet.

Analyze and Share: Students can clip, tag, and annotate videos and images in a personal analysis space in MediaThread. These analyzed items can then be added to ‘multimedia projects’ created by students in a text editing space. When building projects, students have easy access to their saved items as well as items saved by classmates. Projects may be created individually or by groups, and published to the instructor, the whole class, or to the public.

Learn more about MediaThread

MediaThread provides back-end support for multiple classes and configurations. Access the MediaThread code at <http://github.com/ccnmtl/mediathread>.

To find out if MediaThread is the right tool for your course, contact us at ccnmtl-mediathread@columbia.edu. Follow MediaThread updates and announcements at <http://twitter.com/CUMediathread>.

For more information about CCNMTL please visit <http://ccnmtl.columbia.edu> or email ccnmtl@columbia.edu

FEATURED PROJECT : MILLENNIUM VILLAGE SIMULATION

The Millennium Village Simulation (MVSIm) is a Web-based simulation of survival for one family and their village in rural sub-Saharan Africa. Developed by the Columbia Center for New Media Teaching and Learning (CCNMTL) and Jeffrey Sachs, Quetelet Professor of Sustainable Development, professor of Health Policy and Management, and director of the Earth Institute, the simulation was created as a study tool for students in Professor Sachs' undergraduate course, Challenges of Sustainable Development. The Millennium Village Simulation is freely available to sustainable development practitioners and the general public.

In a virtual world of extreme poverty, disease, and environmental variability, students are challenged to help a family 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 economic development—that constitute sustainable development and how those disciplines interact with each other in “real world” scenarios.

Students experience the simulation from two perspectives—the “Family View” where they make purchasing, sales, and effort allocation for a family and the “Village View” where they make decisions for the village as a whole. The MVSIm simultaneously employs models from the different disciplines mentioned above, all of which are introduced through the interface and through explanations of the models and their role in the simulation. Instructors can manipulate these models to produce more challenging scenarios for students to experience in the simulation.

The creators and project partners of the MVSIm hope that, by immersing themselves in the daily life of a family, students will identify more deeply with the complexities of extreme poverty.

“The Millennium Village Simulation represents a new level of engagement for students, where they address the intricate issues of sustainable development in an experiential learning situation that mirrors real-world challenges. Students can step outside of the classroom and into a village, testing what they have learned to further develop their knowledge and understanding of global needs,” explains CCNMTL executive director Frank Moretti.



The simulation's Web site is available to the public: <http://mvsim.ccnmtl.columbia.edu>.



Students in the Challenges of Sustainable Development course discover how to use the simulation.



The simulation's user interface allows students to view aggregate results of their performance.

For more information please visit <http://ccnmtl.columbia.edu> or email ccnmtl@columbia.edu

FEATURED PROJECT : GROUND | WORK



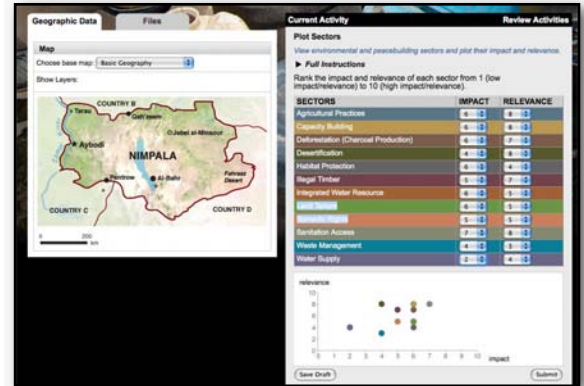
Ground|Work is an online simulation in which users grapple with maintaining the fragile peace in a fictional, post-conflict country called Nimpala. The simulation was developed by CCNMTL and Marc Levy, deputy director of the Center for International Earth Science and Information Network, and is used in Levy's course, "Environment, Conflict, and Resolution Strategy."

Over the course of seven weeks students use their knowledge of previous conflicts and conflict resolution strategies to complete both individual and team activities presented in the Ground|Work simulation. These activities include drafting a conflict assessment, funding interventions, preventing or responding to humanitarian crises, and working with donors. When the simulation concludes, teams will find that Nimpala is in one of three states/conditions: peace, humanitarian crisis, or resurgence of conflict.

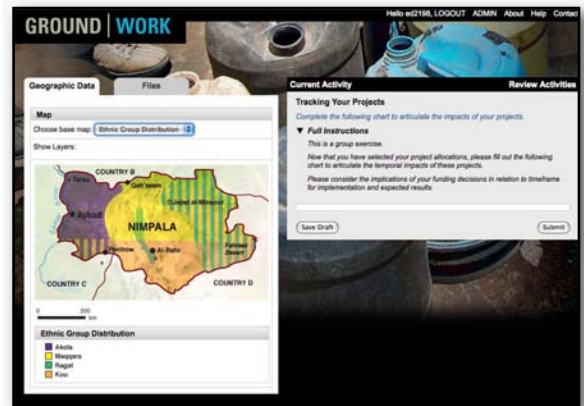
Ground|Work aims to demonstrate how scholarship on environment and conflict translates to practical decision-making in the field or in policy arenas. The simulation presents complex questions that address three conceptual pillars—natural resources, environmental change, and peace building—and asks students to analyze scenarios in which they do not have all the facts, which is often the case in the real world. Furthermore, the simulation helps students understand that the objectives of peace building and natural resources are much more complex when facing a host of conflicting groups.

Throughout the simulation, students are shown that there is no right or wrong strategy in dealing with such complex scenarios. Instead, the simulation underscores the nuanced decision-making process required to address multiple dilemmas and allows students to apply potential management strategies in an explorative, educational setting. Upon completion of the Ground|Work simulation, students should walk away with the abilities to challenge assumptions about the links between conflict and the environment, create new approaches to the linkages, and identify effective management strategies.

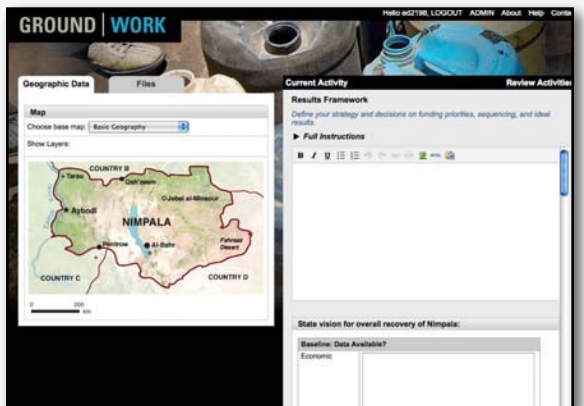
Ground|Work also serves as a vehicle for improving research on environment and conflict, by soliciting feedback from students, professors, and select experts. This interaction will provide a means for testing new approaches and refining analytical frameworks in a way that is useful for future policy makers, aid workers, and conflict resolution practitioners.



Students rank the impact and relevance of environmental and peace-building sectors. The resulting chart serves as a visual representation of a student group's priorities and helps guide decisions regarding future interventions.



Digital maps show the ethnic group distribution and basic geography of the fictional, post-conflict country, Nimpala.



Students define their strategy and decisions on funding priorities, and sequencing, and state their vision for overall recovery of Nimpala in this activity.