MIT OpenCourseWare

MIT OpenCourseWare (OCW) is a free and open digital publication of high-quality educational materials organized as courses. Through the Internet, MIT OpenCourseWare has opened MIT's curriculum and the course materials created by MIT faculty to a global audience of teachers and learners. In the United States and around the world educators use these materials for teaching and curriculum development, while students and self-learners draw upon the materials for self-study or supplementary use.

Since the inception of OCW in 2001, more than 8,850 individuals, including nearly 70% of current MIT tenured or tenure-track faculty members, have voluntarily shared their teaching materials through OCW, amassing a collection of many thousands of individual resources, including documents, video, audio, simulations, animations, and sample programming code. An estimated 150 million individuals have accessed these resources, and hundreds of universities around the world have joined MIT in sharing their own course materials freely and openly on the web.

Highlights of the Year

Publication Status

As of June 30, 2013, there were 2,168 courses available on OCW, representing virtually the entire undergraduate and graduate curricula in MIT's five schools and 33 academic units. Among the live courses on OCW, 742 represent more recent versions of courses that were previously published on OCW. These updated courses have fresh materials, often including new pedagogical approaches. We publish about 40–50 new courses and 60–70 updated courses each year. An update normally requires the complete reassembly of the course site and therefore involves an effort equal to that needed for publishing a new course. When a course is updated, its older version is usually archived to DSpace. To date we have archived 819 OCW courses, with another eight courses in the pipeline to be archived. All courses, including archived courses, can be accessed from the OCW website.

Formation of the Office of Digital Learning

In fall 2012, MIT created a new organizational unit, the Office of Digital Learning (ODL). Professor Sanjay Sarma was appointed to head this unit as its first director. The mission of ODL is to help the MIT community transform teaching and learning at MIT—and around the world—through the use of innovative digital technologies. An early step in the formation of ODL was to create a coherent and mutually supportive central organization comprising previously separate MIT groups engaged in activities directly related to digital learning; in addition, the new *MITx* unit became part of ODL. OpenCourseWare (OCW) was the first unit to become a part of ODL, switching reporting lines from associate provost Philip Khoury in the Office of the Provost to Sanjay Sarma in the Office of Digital Learning.

As a mature organization with time-tested processes and management infrastructure, OCW has been a major contributor in the planning and setting up of the new office. Since the announcement of ODL's formation, OCW has invested considerable time,

energy, and staff resources in ODL staff planning and recruitment, financial systems implementation, and space planning and coordination. Moreover, with substantial experience working with MIT faculty publishing MIT course content digitally using finely-tuned publication production processes, OCW was able to provide significant support for the development of new *MITx* courses and related technology projects. OCW also played an essential role in the development and delivery of an introductory computer programming course targeted at students in Chicago's 2013 Summer of Learning program. OCW participation in *MITx* is detailed later in this document.

Additional Highlights

AY2013 saw a number of important accomplishments and developments for OCW. Most of these are described in greater detail later in this report. During the year, OCW:

- Published 44 new courses and 56 updated courses.

- Published nine courses with full video lectures and five courses with exemplary video lectures or other components such as video labs, demonstrations, or student projects.

- Published new content for the OCW Educator initiative to provide guidance for educators on pedagogical approaches used in MIT courses and on how to take advantage of OCW materials in a teaching setting.

- Collaborated with MIT faculty to build courses for Singapore University of Technology and Design.

- Completed all work under a grant from Bechtel Corporation to publish courses for the MIT Energy Initiative.

- Completed all work under a grant from Dow Chemical Corporation to publish new teaching and learning materials for high school students in collaboration with the MIT Chemistry Department.

- Formulated a plan with the Stanton Foundation to revise OCW Scholar publication targets (three remaining courses to be published in AY2014) and to develop a marketing strategy for Scholar courses; identified two marketing firms to develop and execute the strategy using funds remaining in the Stanton grant.

- Launched a redesigned OCW website; the new design provides a fresh and more engaging user experience, expands user search capability, and offers multiple ways of highlighting courses and site features.

- Planned and began work on a redesign of the Highlights for High School site (which is a separate website from the main OCW site).

- Continued robust development of the Corporate Underwriting program with $2 million in new corporate sponsorship commitments over the next 10 years; brought in $535,025 in sponsorship support during FY2013.

- Generated more than $300,000 in individual donations through online campaigns.

- Established OCW site curator as a new position; as the vast array of content continues to grow—serving more and more users with diverse interests and

backgrounds—it is increasingly important to take a deliberative and discerning approach to the analysis, planning, management, and usability of the OCW website and its content. Curt Newton, OCW publication manager has taken on site curation as an additional role.

Goals

The overarching goals of OCW are to:

- Publish high-quality, up-to-date MIT course materials
- Increase use of OCW for teaching and learning
- Maximize the benefits of OCW for the MIT community
- Support worldwide Open Educational Resources (OER) and the OCW movement
- Sustain the MIT OCW program

The remainder of this report is organized according to these goals.

Publish High-Quality Course Materials

In order to fulfill this goal, we strive to:

- Expand the OCW publication with new MIT course materials in step with the MIT curriculum
- Maintain currency of published content
- Continually improve the depth and quality of materials
- Continually improve user features and site structure to optimize the user experience
- Maintain and enhance an effective technology infrastructure
- Continually refine effective and efficient work processes

Core Course Publication

Course publication is the heart of the OCW mission. During the year ending June 30, 2013, we published 44 new courses. We also updated and refreshed 56 previously published courses, bringing the total number of updated courses on OCW to 742. But numbers tell only part of the story.
OCW courses typically include:

- Planning materials, such as syllabus, calendar, pedagogical statement, and faculty introduction of the course
- Subject matter content in the form of lecture notes, reading lists, full-text readings, and video/audio lectures
- Learning activities, which may include problem sets and solutions, essay assignments, quizzes, exams, labs, and projects, depending on the nature of the course

Many courses have innovative features. Faculty take great pride in their teaching, and this is reflected in the depth and quality of the materials they provide for publication on OCW. A few examples of new and updated courses published this year help to illustrate the kinds of content that users find on OCW:

> *6.007 Electromagnetic Energy: From Motors to Lasers (new).* 6.007 is a new foundation-level course, and is one of the core courses in the energy minor. It covers energy conversion and power flow in both macroscopic and quantum-scale electrical and electromechanical systems, including electric motors and generators, electric circuit elements, and quantum tunneling structures and instruments. It studies photons as waves and particles and their interaction with matter in optoelectronic devices, including solar cells, displays, and lasers. The OCW course has robust lecture notes and five lab videos made in an instructional style that received almost 4,000 visits on YouTube in just over four months.

> *21M.269 Studies in Western Music History: Quantitative and Computational Approaches to Music History (new).* This course introduces the emerging field of computational musicology, which applies sophisticated digital methods to music history and music theory. This course showcases MIT's work in the "digital humanities." Professor Michael Scott Cuthbert has developed a set of open-source tools ("music21") that are used in class assignments. The OCW site also includes several exemplary final papers by students.

> *22.033 Nuclear Systems Design Project (update).* This capstone design course is taken by all Course 22 (Nuclear Science and Engineering) seniors. Along with designing a novel reactor, the course gives students intensive practice with important engineering skills such as planning, teamwork, and the iterative design process. The updated OCW site features many lecture videos and course notes by Dr. Michael Short and extensive documentation about the student project, including videos of milestone design reviews and a detailed final report. This OCW course includes a lively series of pages that explain the demands of the subject and the instructor's approach and pedagogy—one of the first examples of the OCW Educator project.

OpenCourseWare Scholar Courses

In FY2010, OCW received a grant of $2 million over three years from the Stanton Foundation to publish materials for foundational courses specifically structured for independent study. These "OCW Scholar" courses are relatively complete first-year college-level core courses designed for independent learners who may not have many additional resources, such as textbooks, libraries, or subject matter experts, available to them. Scholar courses feature:

- Units organized into learning modules that take the learner through a logical progression of course topics

- Richer content than "regular" OCW courses, including (depending on the course) detailed course notes and course slides integrated from multiple MIT on-campus courses, as well as new content specifically developed for the Scholar course

- Complete lecture videos by world-class MIT faculty

- Applets, simulations, and multi-media visualizations to illustrate concepts
- Learning aids such as video recitations showing step-by-step problem-solving techniques, as well as homework problems and exams with explanations and solutions
- Links to selected websites with related materials for further study

  Access to online peer study groups, powered by OpenStudy.com, for interaction • with other independent learners

There are 12 Scholar courses currently available on OCW, with a final three more in the pipeline for publication in AY2014: 8.03 Physics III: Vibrations and Waves, 2.003 Engineering Dynamics, and 6.041 Probabilistic Systems Analysis and Applied Probability.

With funding from the Stanton Foundation, OCW will conduct a marketing campaign during AY2014 to further increase awareness and usage of Scholar courses. Already Scholar courses are among the most popular on OCW—the 12 published so far all rank among the top 30 most visited courses (out of nearly 2,200 courses on OCW), and user feedback continues to be overwhelmingly positive. This success notwithstanding, the Stanton Foundation believes there is enormous further potential for these courses to have significant benefit for vast segments of society around the globe. Accordingly, over the last year (and in consultation with the Foundation) we developed a two-pronged approach to marketing OCW Scholar: market planning and execution. We selected a marketing consulting firm with higher education experience to assess the market and identify specific target audiences for the marketing campaign; then we selected a second marketing firm to develop materials and conduct the campaign itself.

Supplemental Resources

In addition to publishing MIT course materials, OCW undertakes many special projects to produce supplemental resources that enrich the educational content. As of June 30, 2013, there were 42 substantial supplemental resources on OCW.

Highlights for High School

In addition to the regular course publication, OCW also offers Highlights for High School (HFHS), which was launched in 2007. This program takes advantage of our trove of exceptional teaching resources to better serve high school constituencies. Since its inception, the HFHS portal has received nearly 3.3 million visits and currently averages more than 54,000 visits per month.

This year, we completed work on the MIT-Dow Chemistry Outreach Project. OCW partnered with the Department of Chemistry to develop resources aimed at inspiring interest in the physical sciences, particularly chemistry, among high school students and teachers worlwide. In the past year OCW:

- Published 12 short videos based on "fun chemistry demonstrations" held at MIT; these "Chemistry Behind the Magic" videos employ an innovative format that switches back and forth from the demonstration video to a pair of hands that

write out the chemistry equations and concepts with a simultaneous explanatory voiceover.

- Published "5.301 Chem Lab Boot Camp," a video series with a reality show format that relates the adventures of freshmen students taking 5.301, an intensive IAP class in laboratory techniques. The series comprises a trailer, 11 episodes, and four bonus videos. These resources have been viewed more than 100,000 times on YouTube.

- Published three inspirational video interviews with MIT chemists and chemistry graduate students. These videos explain the importance of chemistry in real-life applications. These interviews provided the model for the "Meet the Faculty" interviews we did for the Biology Department and published on edX.

We are currently in the process of redesigning the HFHS website. The new design updates the look and feel of HFHS to keep it aligned with the rest of the OCW site, although we use a different color palette to distinguish it from the general audience site. The new HFHS site includes updated navigation to better reflect the needs and interests of the target audiences—high school students and their parents and teachers. We are also updating the technology on the site to make it more accessible for our users and easier for us to maintain. For example, RealMedia files have been replaced with MPEG 4 video, which can be streamed through the site from TechTV or from YouTube. The redesigned website will be launched in summer 2013.

OpenCourseWare Educator—How We Teach

This initiative, conceived by the OCW Faculty Advisory Committee in spring 2012, aims to enhance the value of OCW for educators at MIT and around the world. The two main goals of this project are to:

- Articulate and share the educational ideas, practices, and pedagogical expertise of MIT faculty

- Enhance users' ability to best take advantage of course materials on OCW by helping them understand the context and manner in which the materials are used here on campus

Amidst the growth of MOOCs and other online courses, this project also supports a developing role for OCW: Using the internet to inspire and enhance traditional classroom teaching, both at MIT and around the world.

Thus far, the main focus of this project has been on creating course add-on pages that describe the nature of the course, how it is taught, and why it is taught in that specific way. Some of this information is factual and relatively straightforward to gather and share (enrollment, number of units, course sequence, what the classroom looked like, etc.) Other content includes instructors' descriptions and their insights about their teaching practices. We have developed infrastructure to collect, organize, present, and publish this content on OCW. This year we published pilot Educator materials for:

- 11.124 Introduction to Education: Looking Forward and Looking Back on Education

- 18.904 Seminar in Topology

- 22.033 Nuclear Systems Design Project

A new, more comprehensive template is under development. Course add-on pages are in the publication pipeline for a second batch of 16 courses. A longer-term goal is to integrate the recruitment and creation of these pages as standard practice in OCW course publication. Also, in fall 2013 we expect to launch an early-stage website to share an initial batch of educator-focused resources and to collect feedback from users.

Publishing Operations and Related Projects

OCW continually strives to improve systems and methods for delivering service to users and for supporting internal publication work. To these ends, over the last year OCW has undertaken the actions listed below.

Site Curation

Site curation refers to deliberate selection, preservation, maintenance, collection, and archiving of digital assets to add value to websites of digital materials for present and future use. Site curation is a new initiative for OCW. It is designed to afford greater use of the breadth and depth of an OCW publication, improving its value and usability. Site curation includes adding more contextual information to courses, such as how various courses on a topic relate to one another; analyzing and improving the course portfolio's currency and relevance in relation to the MIT curriculum; and helping users find the content best suited to their interests and needs. Curation activities are a complement and enhancement to regular OCW publication.

OCW site curation began at the start of 2013, staffed at 80% effort by a publication manager. Initial work focused on scoping, defining, and prioritizing different possibilities, followed by enhancing web analytics in order to collect better data about current site use. We are already making more effective use of the OCW home page "Featured Courses" capability, and enhancements are under way to each course home page and to the way users can find courses. These changes will allow us to better place courses in context and improve the user's browsing experience.

OpenCourseWare Website Redesign

The completed OCW website redesign launched in December 2012. The objectives of the redesign project were to:

- Update the overall look and feel of the site to convey a more dynamic, fresh, innovative personality for OCW, including increased integration with social media

- Create opportunities for showcasing courses and resources, and a platform on which to build content collections and future enhancements

- Improve the overall user experience to increase discoverability of courses and inspire repeated use of the site

- Create a more flexible home page that would allow OCW to highlight relevant MIT news and events, improve fundraising messaging, and prepare for the new Educator portal

The new design includes a general rotating feature that highlights several timely messages in rotation as well as a "featured course" rotator to call attention to new or updated courses and "hidden gems." There is also a "meet our instructors" feature. The new design has been well received by OCW users, and our evaluation research data confirm a positive impact:

- Traffic to the new "find courses by topic" feature has pushed this page to number two on our list of top 10 pages, with an average of more than 200,000 views per month.

- The new course highlighting tools have increased traffic to the featured courses.

- Operationally we can now highlight much more content—with much less effort—than we could before the redesign, which has been particularly important with all the activity around MITx.

Video Improvements

OCW continues to pursue an ambitious goal of publishing video assets. This year we published nine courses with full video lectures and an array of video recitations, labs, demonstrations, and student projects. The OCW site now has a total of 59 courses and 14 supplemental resources with full video lectures.

Among the courses published this year with full video lectures were: 6.003 Signals and Systems, 6.041 Probabilistic Systems Analysis, 14.73 The Challenge of World Poverty, 15.031J Energy Decisions, Markets, and Policies, 15.401 Finance Theory I, and SP.775 D Lab: Energy.

We successfully incorporated process innovations from last year into our standard publication process, expanding our options for video capture, resulting in more timely service as well as cost savings. We also made improvements to our video edit sheet template for more efficient editing and created new video training materials, which we shared with the MIT News Office for their training.

We now publish almost all of our videos in High Definition (HD, 720p) on YouTube for a much improved user experience.

This year OCW provided significant support for *MITx* and edX in their efforts to create online courses. This support included:

- Researching tablet video hardware and software

- Providing training and support to faculty and TAs in creating MITx/edX videos

- Assessing instructor needs for video capture

- Setting up the video capture for 14 MITx courses

- Reviewing videos and provided timely feedback to instructors

- Coordinating faculty review of files after capture of each lecture or recitation—a service that faculty are increasingly interested in

Providing video training to the MITx project managers and support staff

- Coordinating 15 "Meet our Instructors" video interviews with professors in the Biology Department, most of which were posted on the course site for edX's 7.00x Introduction to Biology: The Secret of Life

Accessibility

We continued to close the gap on transcripts and subtitles for courses and supplemental resources with full video lectures. We now have lecture video transcripts and subtitles for 28 courses and two supplemental resources with full video lectures, with additional courses in our pipeline. When finished, the entire inventory of full video lecture courses will have full transcripts and subtitles. Ongoing, new videos are routinely submitted for transcription.

Radar System

The OCW Radar system is an automated process that maps the MIT Registrar's official catalog of all undergraduate and graduate courses to the OCW course publication list. First implemented in AY2012 as an add-on to OCW's Filemaker workflow management system, this past year marked the first full year of operation. OCW Radar provides the OCW publication team with detailed information about the MIT curriculum and shows how current OCW publications are in relation to actual MIT courses taught on campus. The system breaks information down even further, showing, for example, the completeness and currentness of General Institute Requirements (GIR courses) published on OCW, along with several other measures. We use Radar to identify unpublished courses, to flag courses past due for update, to plan the fall and spring OCW publication cycles, and to facilitate discussions with department heads and academic coordinators about publication priorities. We are continually refining the Radar system.

Fair Use

This year we added 542 fair use objects (out of almost 2,000 third-party objects) to the OCW publication, bringing the total number of courses containing fair use objects to 133, up from 93 at the end of last year. Fair use has now become a standard part of the OCW publication process.

Increase Use of OpenCourseWare for Teaching and Learning

In order to fulfill this goal, we strive to:

- Increase awareness of OCW

- Increase traffic to OCW content via multiple distribution channels

- Tailor OCW content to the needs of key external audiences

- Foster the development of communities of learning around OCW content

- Support the use of OCW content by educators and educational systems globally

Users

OCW serves a global audience under a Creative Commons Attribution/Noncommercial/ Share-Alike license. Users include:

- Educators, who may adopt or adapt the materials for their own teaching purposes
- Students enrolled in educational programs, who may use the materials for reference, practice exercises, or mapping out their programs of study
- Independent learners, who may find the materials helpful for enhancing their personal knowledge either from the materials themselves or from the many references, readings, and other resources

Figure 1 shows the distribution of OCW users. About 95% of all users indicate that they are partially or fully successful in achieving their purposes in using OCW.
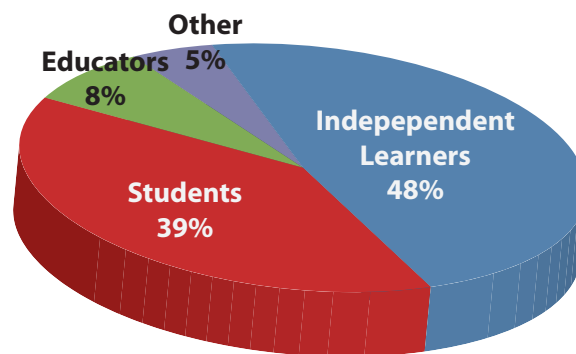

Figure 1. OCW users

OpenCourseWare Distribution Channels and Traffic

OpenCourseWare Website

The primary source for OCW materials is the OCW website. In AY2013, visits averaged 64,605 per day, up 14% from the previous year; this translates to about 23.5 million visits for the year. Figure 2 shows how traffic to the OCW website has grown over the years.
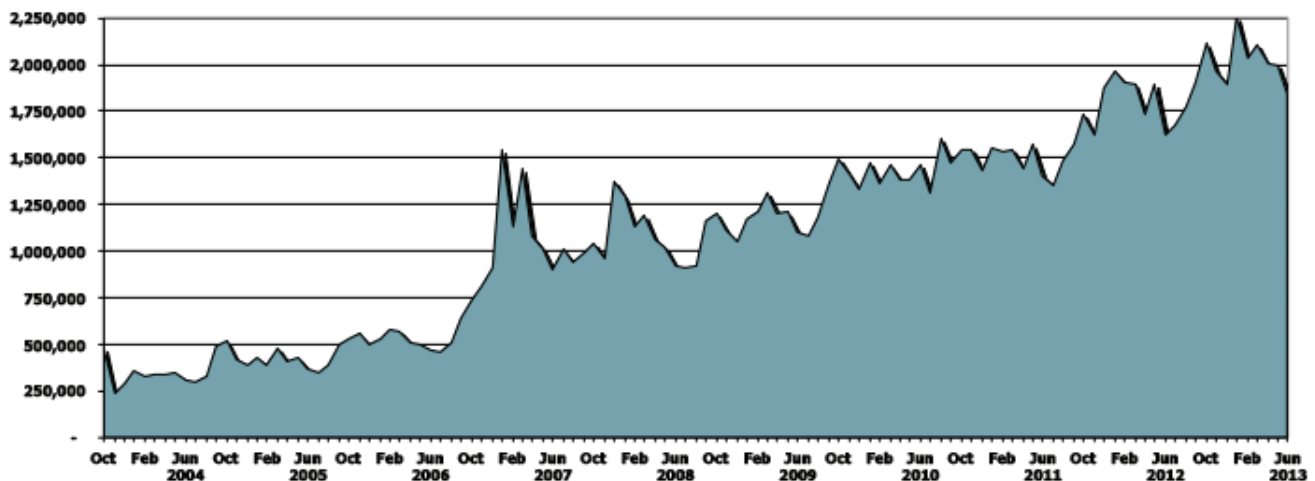

Figure 2. Web traffic to OCW Website through June 30, 2013

In addition to the OCW website, MIT provides content through video distribution websites, zip downloads, the mirror site program, and translation affiliate websites. The graph does not show additional access to content via other distribution channels. Evaluation research shows that, since inception, about 150 million people from every corner of the globe have accessed OCW content.

Video Distribution Websites

All OCW video and audio materials are now available through YouTube, iTunes U, VideoLectures.net, and Internet Archive. OCW video materials comprise more than 1,800 hours of content (200 more hours than last year), including 73 full-course video lecture series for some of the most popular courses and supplemental resources, as well as video clips and demonstrations for many more. In FY2013, iTunes downloads averaged about 610,000 per month, and YouTube views averaged about 1.1 million per month. To date, iTunes U and YouTube together have supplied more than 88 million video downloads, an increase of 20 million over last year. These free services replaced bandwidth that OCW would otherwise have had to buy from its worldwide network distribution service provider.

Zip Downloads

Users can download individual courses in zip files for offline use. As of June 30, 2013, OCW has delivered over 17.8 million zip files of full course content.

Mirror Site Program

For users in certain developing regions of the world, internet access is cost prohibitive, unreliable, or nonexistent. OCW helps bridge the "digital divide" through its mirror site program. Since 2006, the program has provided OCW content on external hard drives, with updates via low-bandwidth-compatible rsync service, to educational institutions in areas with limited internet access. As of June 30, 2013, OCW supported 339 mirror sites, an increase of 9% over last year. Mirror sites are primarily in African and South Asian countries such as Ethiopia, Ghana, Kenya, Namibia, Nigeria, Pakistan, the Philippines, Rwanda, Tanzania, and Zimbabwe.

Under the program, local educational institutions become OCW mirror site affiliates and agree to host OCW materials openly and freely under the OCW Creative Commons license. Affiliates also agree to promote OCW use among their constituents and provide a local contact for content updates and monthly usage data. The majority of OCW mirror site affiliates are colleges or universities that have good local area networks but may have access only to costly or weak internet infrastructures. Nonprofit organizations, ministries of education, and internet service providers are also OCW affiliates. All technical and coordination efforts are provided on a volunteer basis.

The program is greatly facilitated by MIT students choosing to serve their home or host countries and help make OCW available locally. Many students on MIT Public Service Center fellowships or internships through the MIT International Science and Technology Initiatives personally install OCW on local campuses and also use the resource to teach courses and topics in mathematics and science at local venues.

Translation Affiliate Websites

Other organizations and institutions translate OCW content for their audiences. Languages include Arabic, Chinese (simple and classical), Farsi, French, Japanese, Portuguese, Spanish, Thai, and Turkish. This year, we added a Korean translation affiliate (Sookmyung Network for Open World), which plans to translate 34 courses within the next two years. Sookmyung has already translated the complete video lectures for several courses including 3.091SC, 5.112, 6.00, 7.012, 7.014, 8.01, 8.02, 18.03, and 18.410J. We have also recently signed an agreement with Shamsuna Al-Arabia, an Arabic translation affiliate, which will make 10 courses available with a concentration on courses that have complete video lectures. So far Shamsuna Al-Arabia has completed translations for 8.01 and 18.01.

We are aware of more than 1,100 translations of MIT OCW courses at the end of FY2013. This number includes multiple translations of certain popular courses. Translations by formal affiliates can be accessed from their respective OCW courses, whether active or archived, and all can be accessed directly at the translation affiliate websites.

OpenCourseWare in the News and at Conferences

Media Mentions

We aggressively pursue media opportunities as a means of increasing OCW visibility and impact, and as a result OCW is frequently cited in the media. OCW appeared in the press more than two dozen times during the past year. Examples include:

- "MIT alumnus uses OCW and MITx to enhance educational offerings," MIT News, June 19, 2013

- "How Online Learning Is Reinventing College," Yahoo! News, June 2, 2013

- "Meet the Next Generation of Entrepreneurs," Wired.com, May 10, 2013

- "Personalizing Learning Is the Key to Engagement and Achievement," Huffington Post.com, May 3, 2013

- "May Computing MOOCs and Open Courses," iProgrammer.com, April 30, 2013

- "Hong Kong MOOC Draws Students from Around the World," Chronicle of Higher Education, April 22, 2013

- "OCW Provides Challenges for Talented Young Student," MIT News, March 26, 2013

- "Education in the Digital World," DAWN.com, March 18, 2013

- "Opinion: Guest Column: MIT Must Ensure the Vitality of OCW," MIT News, March 8, 2013

- "Realizing a Dream: a Young Roboticist's Journey in Sierra Leone," SierraExpressMedia.com, February 20, 2013

- "Knowledge Is Power: Free Resources for College Lectures," Boston.com, February 14, 2013

- "A Vision of OCW for the Future," The Tech, February 7, 2013

- "MIT Ranks as the Buzzed-about University Online for the Second Year in a Row," BostInno.com, January 27, 2013
- "Internet Is Changing How the World Is Educated," The Moscow Times, January 16, 2013
- "Hybrid Teaching and Flipped Classrooms," The Nation Thailand, November 2012
- "MIT OpenCourseWare Marks 10th Anniversary of Pilot Site Launch," MIT News, October 6, 2012
- "How to Homeschool Your Child on a Budget and Save Money," MoneyCrashers.com, September 24, 2012
- "Free Online Course Will Rely on Multiple Sites," The New York Times, August 21, 2012
- "ChemLab Boot Camp: MIT OpenCourseWare Launches Reality Series," MIT News, August 14, 2012
- "Why Open Education Matters? Check Out the Video Winners," HuffingtonPost.com, July 28, 2012
- "8 Online Platforms to Help You Further Your Education for Free," BostInno.com, July 2, 2012

Presentations and Workshops

Generally, all presentations and workshops include both a general discussion of OCW as well as materials specifically germane to the theme of the event. OCW organized or participated in the following conferences during the past year:

- Learning International Networks Consortium Panel, MIT, June 16, 2013
- OCW Next Decade Alliance meeting with OCW corporate underwriters, MIT, May 16, 2013
- OpenCourseWare Consortium Conference, Bali, Indonesia, May 8, 2013
- Universia MOOC Conference, Miami, FL, March 7, 2013
- Ho Chi Minh Medical School, OCW Headquarters, Cambridge, MA, January 29, 2013
- Interview on WDRC-AM talk show in Hartford, CT: The Mary Jones Show, January 23, 2013
- Russian Educators, MIT, November 15, 2012
- "OCW Scholar Courses" at OpenEd Conference, Vancouver, British Columbia, October 17, 2012
- Live taping on television show Higher Education Today, October 2, 2012
- OPENPediatrics: MIT OpenCourseWare Revenue Streams, Children's Hospital Boston, in support of their OPENPediatrics program, August 30, 2012

- Australian and New Zealand Institute of Insurance and Finance, OCW Headquarters, Cambridge, MA, July 2, 2012

Case Studies

During the past year, we have made a significant effort to better document and share case studies about individuals around the world who have benefited from OCW. These case studies help demonstrate the benefits of our open education efforts. Case studies published this year include:

- A world of OCW benefits: Powering career advancement
- OCW brings educational opportunities to Sierra Leone
- OCW provides challenges for talented young student
- OCW supports independent study for New Jersey high school students
- 6.003z signals a new open education ecosystem
- MIT alumnus uses OCW and MITx to enhance educational offerings in Turkey

Maximize the Benefits of OpenCourseWare for the MIT Community

OCW contributes to the MIT community by:

- Supporting MIT initiatives
- Creating lifelong connections between MIT and our students and alumni
- Catalyzing improvements in teaching and learning at MIT
- Showcasing MIT's curriculum, strengthening its reputation, and promoting international engagement

Support for Office of Digital Learning, MITx, and edX

OCW has contributed in planning for the Office of Digital Learning and *MITx*. In fall 2012, prior to the formation of ODL, OCW helped set up and manage an internal computing infrastructure to support on-campus use of the edX software for 8.01 Physics I: Classical Mechanics. Under the guidance of professor Isaac Chuang, OCW production manager Peter Pinch installed edX software on systems in the MIT Data Center and supported this infrastructure through the term. Students used this platform to answer reading questions prior to class.

During winter 2013, following the formation of ODL, OCW managers helped Professor Sarma develop staffing plans, drafted job descriptions, and identified and recruited qualified staff to fill initial positions. OCW assistant director of finance and administration, Maria Karatzas, took over similar responsibilities for ODL. OCW staff assisted in planning and setting up office space for the new *MITx* team in B41. OCW staff consulted with ODL management and with staff from the Office of the General Counsel regarding intellectual property policy and implementation for *MITx*.

Members of OCW's publication team joined *MITx*/edX course projects in 2013 in varying roles, including project manager, video production coordinator, and intellectual property consultants. OCW also provided significant support for development and delivery of an introductory computer programming course, "A Taste of Python Programming," targeted at students in Chicago as part of that city's 2013 Summer of Learning initiative. The six-week course provided a basic introduction to programming skills.

OCW's Peter Pinch recruited and supervised members of a new production team for *MITx*, continued to manage the *MITx* technical infrastructure used by 10 MIT courses during the spring semester, and recruited the first full-time *MITx* programmer/engineer who will start in August 2013. The OCW executive director worked with Professor Sarma and the senior leadership team of ODL to establish a strategic planning process for ODL that was initiated during summer 2013.

Support for Other MIT Initiatives

During AY2013, OCW collaborated with the following MIT programs and initiatives:

Community messaging on the OCW website. OCW has a non-commercial "advertising" capability that conveys MIT messaging to millions of OCW users around the world, with announcements supporting MIT programs. For FY2013, these programs included MIT Professional Education, Sloan Executive Education, Sloan Teaching Innovation Resources, the System Design and Management Program, MIT's Learning International Networks Consortium Conference, the MIT Center for Transportation and Logistics, the Alumni Office, the MIT Museum's 150th Exhibit, the School of Engineering, edX, and the Koch Institute. For FY2013, OCW served 65,953,388 ads on behalf of the MIT community.

Singapore University of Technology and Design (SUTD). OCW staff worked with MIT faculty and the MIT-SUTD Collaboration Office to coordinate, produce, and deliver 31 courses for SUTD. Faculty members are working on 19 additional courses that will be prepared and delivered over the next few months. Funding for this work is provided through an agreement between MIT and SUTD. Some courses are cross-published for SUTD and the OCW website. Last year, these included TECH 936 (2.96 Management in Engineering) and ASD 104 (4.605 Introduction to the History and Theory of Architecture); additional cross-published courses are in the pipeline: ISTD 821 (6.837 Computer Graphics) and EPDM 203 (16.06 Principles of Automatic Control).

MIT-Dow Chemistry Outreach Project. This project is described in the Highlights for High School above.

MIT Energy Initiative (MITEI) Education Office. OCW published five more courses from this curriculum in AY2013. Three of the five are from the MIT energy minor core curriculum and four have video assets. Highlights include 15.031J Energy Decisions, Markets, and Policies (with full video lectures), 6.007 Electromagnetic Energy: From Motors to Lasers (with five video labs), and 12.340 Global Warming Science (with over 100 graphs and instructional images). In total, OCW has published 15 courses from the MIT energy minor curriculum, five from the core curriculum, and five with video assets. In addition, in the past year OCW created a collections portal showcasing all of the energy minor courses published on the OCW site. Funding for this work was provided by a grant to MIT from the Bechtel Foundation.

Other Benefits

Beyond its service to a worldwide audience, OCW has a significant impact at MIT, where both faculty and students embrace it. OCW staff work extensively with faculty to develop or refine course materials for publication, and faculty frequently use these updated materials in their classroom teaching on campus. Below are some statistics:

- 84% of MIT faculty use OCW in their teaching, advising, or research
- 32% of faculty say that publishing on OCW improves their teaching materials
- 93% of MIT undergraduate students and 82% of graduate students use OCW in one or more ways: as a part of their assigned coursework, as a supplemental resource for study, or as a tool for planning curricular programs and choosing courses
- 96% of these students say OCW has a positive impact on the MIT student experience

Support Worldwide Open Educational Resources and the OpenCourseWare Movement

To fulfill this goal, OCW works to:

- Support the OCW Consortium
- Engage with other OER programs to increase the collective benefits of open resources

OCW's principal focus in the area of worldwide OER is its support of the OpenCourseWare Consortium (OCWC). Originally a development effort led by MIT OCW, the consortium is now an independent 501(c)3 organization. OCWC (http://www. ocwconsortium.org) is a collaboration among more than 250 domestic and international institutions that have banded together to advance education and empower people worldwide through OpenCourseWare. The goals of the consortium are to:

- Extend the reach and impact of OCW by encouraging the adoption and adaptation of open educational materials around the world
- Foster the development of additional OCW projects
- Ensure the long-term sustainability of OCW projects by identifying ways to improve effectiveness and reduce costs

During AY2013 OCW participated in the second annual Open Education week, which was highlighted on the OCW website. In addition, the OCW External Relations Director chaired the OCW Consortium Awards Committee and managed the selection and presentation of the third annual Awards for OpenCourseWare Excellence.

Sustain the OpenCourseWare Program

OCW invests considerable effort in ensuring the ongoing viability of our program by:

- Continually develop the OCW team as a responsive, professional organization
- Maintaining communications to keep stakeholders informed

- Evaluating and reporting on OCW programs

- Managing OCW finances responsibly

- Ensuring long-term financial viability of OCW

- Ensuring a vibrant future for OCW through effective planning

OpenCourseWare Finances

Core Budget

OCW expenses for FY2013 totaled $3.9 million, 7% below the budget of $4.2 million. MIT contributed $2.1 million from general Institute funds to support OCW. Remaining funding currently comes from a combination of grants, corporate gifts, general donations, Amazon revenues (commissions on sales generated through the OCW website), interest on endowment funds, and prior year reserves.

Reserves represent unspent funds from prior years from donations, grants, corporate gifts, and other sources of revenue. The amount we draw down from these reserves depends on our ability to attract grants and gifts in the current year, and varies each year. The OCW reserve balance at the beginning of FY2013 was $3.3 million. As a result of better than expected corporate and individual gift fundraising in FY2013, and the impact of cost management, the reserve balances at end of FY2013 increased to $3.7 million. However, we recognize that eventually these reserves will be exhausted, and we continue to work toward a fully sustainable funding model for OCW.

Online Donations / Small Gifts

In FY2013 OCW received 2,652 donations (up 14% from last year) from 2,544 individual donors (up 15%) totaling $313,145.21 (down 17%). These donations included small online gifts and matching gifts from donors' employers. We were encouraged by the increase in participation even though average gift size was smaller.

This year, we piloted a participation challenge for the spring campaign. The idea was to encourage OCW users to help us receive a $25,000 matching gift award by donating at any level. The goal was to inspire 700 people to donate within 36 days. Four donors who have given to OCW at a significant annual fund level supported the $25,000 matching gift award. The campaign was successful, in fact the best performing online campaign in our history, garnering 750 donors and raising a total of $51,957.87. We plan to host more participation campaigns in the future.

Corporate Underwriting and Sponsorship

In the third year of our corporate underwriting program, we signed two additional major sponsors, Accenture and Telmex. They contributed a combined $400,000 with additional commitments in the future. Total contributions provided by corporate sponsors in FY2013 was $525,000 and we now have $2 million in corporate sponsorship commitments over the next ten years. Corporate underwriters of OCW enjoy the benefit of supporting a renowned global intellectual philanthropy effort as well as the impact of traditional web marketing. Corporate underwriters get prominent recognition on the OCW website as well as receiving other benefits.

In May 2013, OCW hosted the second Next Decade Alliance (NDA) advisory board meeting. Attendees included representatives from Dow Chemical, Accenture, Lockheed Martin, MathWorks, Telmex, and MIT faculty. NDA is a select group of corporate donors and underwriters that support OCW with both funding and expert guidance.

With the approval of the chancellor—and as a natural outgrowth of speaking with corporations regarding support for OCW—Tom Smith, OCW corporate underwriting manager, has extended the scope of OCW sponsorship discussions to include financial support for *MITx*. Today, virtually all contacts with corporations include discussion of *MITx*. We are now working across the Institute (with Resource Development, MITEI, and the Provost's Office) on joint *MITx* presentations and coordinated fundraising messaging.

Other Fundraising Outreach

OCW executive director Cecilia d'Oliveira was a featured speaker at a special evening event hosted by OCW external advisory board member Ewa Abraham and her husband Dan at their residence in Palm Beach, FL, in November 2012. Nearly 50 individuals, consisting of friends of the Abrahams and MIT guests, attended the event. Margardet Dimock of the Office of Leadership Giving and Richard MacMillan of the Office of the Vice President for Resource Development attended the event.

Organization and Governance

OpenCourseWare Team

As of December 2012, the OCW organization reports to Sanjay Sarma, the director of digital learning. We increased staff size from 26.2 to 27.2 full-time-equivalent positions with the hiring of an additional department liaison resource (funded by special project grants).

Curt Newton, OCW publication manager, took on the additional role of site curator, a change that reflects the increasing priority we place on managing the vast array of OCW content and increasing usability of the site for users. We had some turnover in the organization this year. Two staff members accepted positions with *MITx*. Janet Chuang, OCW publication manager, announced her resignation, effective summer 2013. As of June 30, we were completing searches to fill three open positions.

OpenCourseWare Faculty Advisory Committee

The Faculty Advisory Committee is an internal oversight group that advises on OCW policy, sustainability, and relations with the MIT faculty and with academic departments. Committee members in AY2013 included:

- Hal Abelson, Electrical Engineering and Computer Science
- Jeff Chan, undergraduate student, Electrical Engineering and Computer Science
- Eric Klopfer, Urban Studies and Planning
- Vijay Kumar, Office of Educational Innovation and Technology
- Stuart Madnick, Sloan School of Management
- Haynes Miller, Mathematics

- Shigeru Miyagawa (chair), Foreign Languages and Literatures

- Hazel Sive, School of Science

- Karen Willcox, Aeronautics and Astronautics

- Ann Wolpert, MIT Libraries

- Dick Yue, School of Engineering

External Advisory Board

The OCW External Advisory Board advises MIT on key questions concerning future directions and the sustainability of OCW. The board meets annually on campus, with additional telephone and electronic interaction during the year. The board meeting this year was held on November 30, 2012, on the MIT campus.

Members of the External Advisory Board as of the end of AY2013 were:

- Ewa Abraham, whose interest is early childhood education

- Bruce Alberts, professor, Department of Biochemistry and Biophysics, University of California, San Francisco; co-chair, InterAcademy Council; editor-in-chief, Science magazine; and former president, National Academy of Sciences

- Tim Berners-Lee, professor, School of Engineering, MIT, and founder, World Wide Web Foundation

- John Seely Brown, former chief scientist, Xerox, and chief innovation officer, 12 Entrepreneuring

- Cathy Casserly, CEO, Creative Commons

- Eric Grimson, chancellor, MIT

- Sheryl Handler, CEO, Ab Initio, and MIT alumna

- Kim Jones, chair of the board and executive director, Curriki Global Learning Network

- William Kaiser, partner, Greylock Partners, and MIT alumnus

- Temitope O. A. Lawani, Managing Partner, Helios Investment Partners, and MIT alumnus

- Frannie Léautier, executive secretary, The African Capacity Building Foundation, and MIT alumna

- Shigeru Miyagawa, section head and professor, Foreign Languages and Literatures, MIT, and chair of the OCW Faculty Advisory Committee

- Abhay Parekh, adjunct professor, Electrical Engineering and Computer Science, University of California, Berkeley, and MIT alumnus

- Sam Pitroda, chairman, India Knowledge Commission, and chairman and CEO, World-Tel Limited

- J. William Poduska, founder of Prime Computer, Apollo Computer, and Stellar Computer, and MIT alumnus

- Sanjay Sarma, professor and director of digital learning, MIT

- Peter Smith, senior vice president of academic strategies and development, Kaplan Higher Education, and former assistant director general for education, UNESCO

- Raymie Stata, CEO, VertiCloud and managing director, Cambridge West Ventures; MIT alumnus

- Maria Thomas, former CEO, Etsy

- Charles M. Vest, president, National Academy of Engineering, and MIT president emeritus

Cecilia d'Oliveira
Executive Director