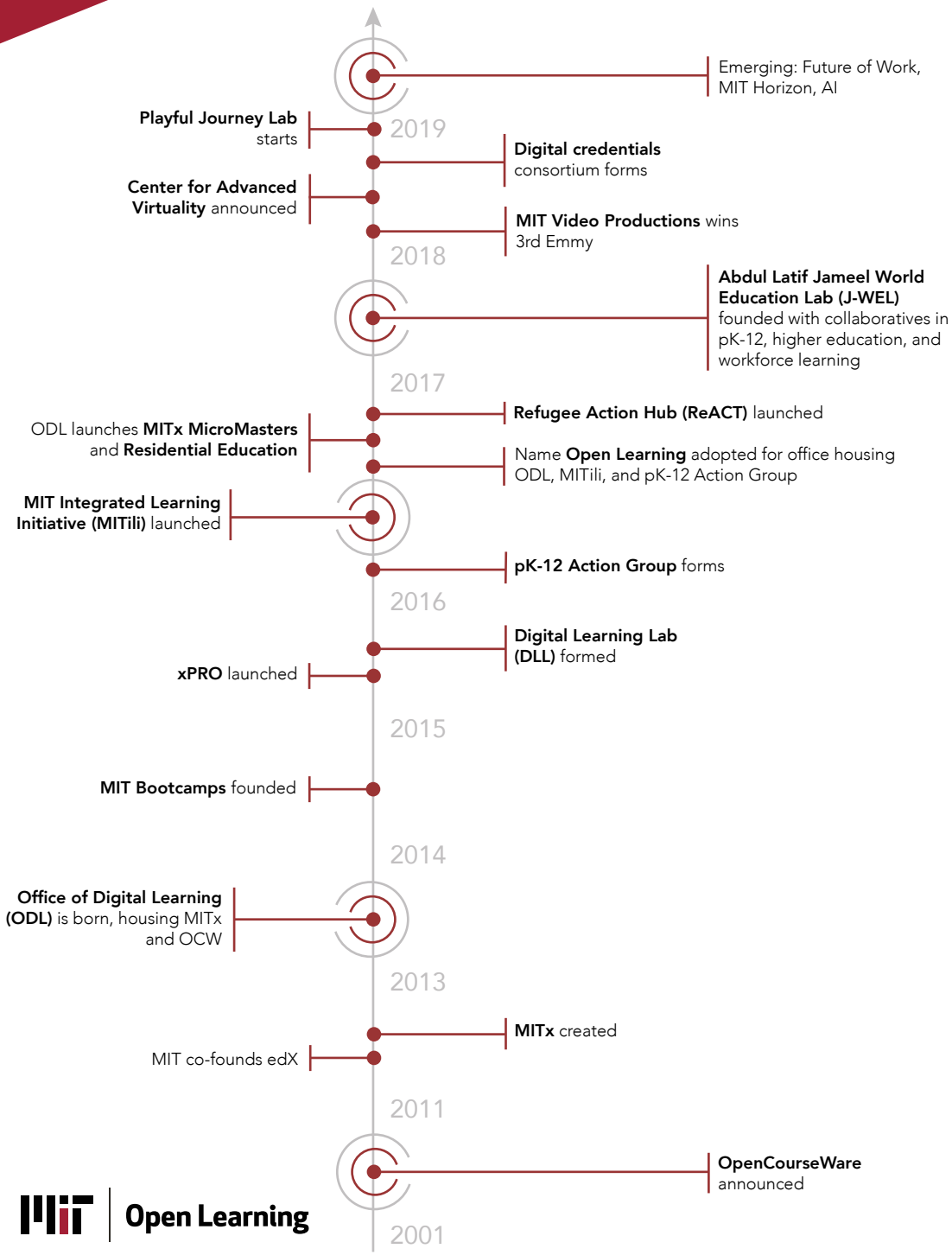
MIT | Open Learning

Reinventing education for the 21st century and beyond

A History of MIT Open Learning



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openlearning.mit.edu

Welcome from **Sanjay**

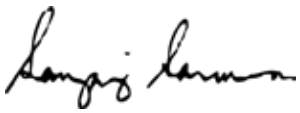
Since its founding, MIT has been a forerunner in educational innovation — from *mens et manus* to OpenCourseWare, MITx, edX and, now, MIT Open Learning.

Along the way, MIT and its community have been involved in the creation of several celebrated educational efforts: the Physical Science Study Committee (PSSC), Logo, Scratch, Khan Academy, Quizlet, First Robotics and much, much more. MIT has also helped to establish several universities worldwide, including the Indian Institute of Technology Kanpur and Birla Institute of Technology and Science, Pilani in India, Instituto Tecnológico de Aeronáutica in Brazil, Sharif University of Technology in Iran, Singapore University of Technology and Design, Skolkovo Institute for Science and Technology in Russia, and Masdar Institute of Science and Technology in the United Arab Emirates.

Here at Open Learning our work has evolved over the years to keep pace with the realities of the 21st-century, many of which pose challenging questions for education today. A rapidly changing global economy demands new skills of its workforce. Conflict- and climate-driven global migration displaces more and more young learners, and strains regional education systems. And the ever-rising cost of tuition and declining public trust in institutions raises new barriers to higher education.

Yet alongside these challenges and uncertainty, there is immense opportunity to apply MIT's aptitude for science, technology, and research to reinvent education for today's world. With MIT's hallmark spirit of innovation, Open Learning is reimagining education to better serve learners of all ages, and through the use of digital tools, new technologies, and applied research, to transform teaching and learning here at MIT, and around the world.

Join us in building a better world through open learning.



Sanjay Sarma
Vice President for Open Learning

Learning

MIT Open Learning creates and fosters educational opportunities by creating the next generation of digital and blended learning technologies, platforms, and communities. From professional education and residential learning to rich online libraries of content, we are committed to developing new and more agile pathways accessible for learners of all backgrounds and competencies.

MIT OpenCourseWare (OCW)

OCW publishes teaching materials from across the MIT curriculum online, openly and freely. It is a pure expression of MIT's mission to advance knowledge and serve the world, and a globally recognized foundation of MIT's open learning strategy.

Educational innovation: OCW pioneered a global Open Educational Resources movement to make education accessible and affordable for all. It shares MIT faculty insights on the evolving practice of teaching through OCW Educator.

Impact: More than 500 million people have accessed OCW materials to improve their personal knowledge, learn new teaching methods, complement or prepare for a course of study, and explore areas outside their professional field.

Current work: While continuing to grow its collection of nearly 2,500 courses and supplemental materials, OCW is designing a next generation platform for greater access, usability, and new collaborative opportunities. OCW continues to develop new channels to reach people, with a new podcast that showcases MIT instructors and their inspiring teaching.

MITx

MITx courses meld the content typically delivered on the MIT campus with advanced digital technologies to bring learners a variety of innovative curricula, available to learners across the globe with a computer or smartphone.

Educational innovation: Pioneering the massive open online courses (MOOCs) movement, which led to the creation of edX and its platform that serves more than 20 million learners worldwide.

Impact: More than 8.5 million people have registered for an MITx course, with 3.9 million unique learners. More than 203,000 certifications have been issued. MITx has supported faculty to develop over 120 MIT courses from across MIT's 5 schools that have been run nearly 600 times in total.

Current work: As MITx continues to build upon its MOOCs catalogue with new courses, we are piloting the MITx xMinor. This new learning opportunity consists of a sequence of MITx MOOCs equivalent to roughly one-third to one-half of an undergraduate minor. These courses can be taken by individuals or used by other colleges and universities to supplement their residential curriculum. The first xMinor is in Materials for Electronic, Optical and Magnetic Devices. The program is also driving the creation of the Open Learning Library — selected educational content from MIT OpenCourseWare and MITx courses, available to anyone in the world at any time for free — a renewed commitment by the MIT faculty to ensure accessible course content that offers instant feedback.

MITx MicroMasters® Programs

MITx MicroMasters programs aim to provide a cost-effective pathway for learners to earn a valuable professional and academic credential that counts towards half of select MIT and other university graduate degree programs.

Educational innovation: The first of its kind, the MITx MicroMasters program offers learners the credentials necessary to apply for an accelerated, on campus, master's degree program at MIT or other top universities.

Impact: More than 767,000 people from 195 countries have taken an MITx MicroMasters program course. 2,138 have earned their credential, with 76 MicroMasters program credential holders who have matriculated into MIT and have graduated. The program has also enabled credential holders to apply to more than 93 graduate programs at 31 pathway universities in 19 countries.

Current work: In addition to the four current MITx MicroMasters programs in Supply Chain Management; Data, Economics, and Development Policy; Principles of Manufacturing; and Statistics and Data Science, the team will launch a new program in Finance in the Spring of 2020.

xPRO

MIT xPRO develops and delivers online, fee-based programs targeted to adult learners who wish to expand their knowledge and build their skills, primarily in the context of professional education. MIT xPRO was formed in spring 2015 in response to market demand for MIT professional education, especially in rapidly changing technology and business disciplines, where MIT is recognized as a leader.

Educational innovation: Using cutting-edge research on the science of learning, MIT xPRO creates and implements online digital programs for organizations to advance strategic objectives and build employees' skills.

Impact: More than 35K employees at companies such as Boeing, Ford, IBM, Apple, and Shell have taken MIT xPRO's learning programs. The online format provides flexibility for employees to learn while on the job.

Current work: Launching the Leadership Academy for Scientists, Engineers, and Researchers (LASER), which offers early and mid-career technical professionals opportunities to build their leadership acumen.

Horizon

MIT Horizon is a subscription content library designed to help large organizations educate their workforce on emerging technologies.

Educational innovation: Developing short-form, introductory learning content on emerging technologies like additive manufacturing, artificial intelligence, blockchain, robotics, and cybersecurity.

Impact: We are currently launching with our first 5 customers which together have a learner license base of over 300,000 working professionals. Early feedback is encouraging. We also support learners at various MIT programs including MIT Solve, MIT Innovation Initiative and MIT Systems Design Management.

Current work: Developing more content and new content formats, expanding commercial efforts and supporting current customers.

ON OUR MINDS

For more and more students, the traditional residential four year college experience is inaccessible. MIT Open Learning is designing new, more agile pathways that combine online coursework and micro credentialing (inspired by the MicroMasters program) with high-value in-person learning experiences like mentorship and apprenticeships to better support lifelong learning. To support this new learning ecosystem, MIT is leading a global effort to develop verifiable digital credentials through a shared infrastructure among universities and educational institutions, supported by blockchain technologies.

Teaching

MIT faculty are the backbone of our educational efforts. Open Learning has become the central resource on campus for MIT faculty who recognize the public good of sharing their teaching with the world or wish to enhance their teaching at MIT with digital technologies.

Residential Education

The Residential Education team works to empower MIT faculty to use digital technologies to augment and transform how they teach. Efforts center around collaborating with MIT faculty to instigate, explore, test, and institutionalize pedagogical models that enhance on-campus education through the use of digital technology.

Educational innovation: Using the Residential MITx online platform, MIT students and faculty benefit from online assessments with rapid feedback, active learning classrooms, flexibility in course delivery, and other emerging digital teaching and learning innovations.

Impact: MIT faculty and instructors have developed sophisticated auto-graded assessments – and more than 35,000 unique problems – for their on-campus students' homework, quizzes and tests. A digital learning ecosystem has developed whereby a faculty member may build a suite of digital learning content and assessments on the Residential MITx platform to support teaching and learning in their classroom. Building on the experience, and benefiting from student feedback, the faculty member may then decide to transform the course for use on edX for global learners.

Current work: Residential's outreach strategy includes a curated collection of best practices, a digital learning speaker series, and several institute-wide events.

99% of MIT undergrads have taken an MIT class that uses MITx tools tailored to campus use.

OCW Educator

OCW Educator shares MIT teaching approaches and helps education professionals navigate the vast library of open educational resources available through MIT OpenCourseWare.

Educational innovation: Articulating and sharing the educational ideas, practices, and pedagogical expertise of MIT faculty and enhancing users' ability to take best advantage of course materials on OCW by helping them understand the context and manner in which the materials are used here on campus.

Impact: Educator resources have been viewed over 1 million times. The Educator portal has an average of 500 visits per day, with the most active users in India and the United States. Professors have told us they are reusing and remixing materials from OCW to enhance learning experiences of undergraduate students.

Current work: Producing an OCW Educator podcast featuring MIT faculty who have published on OCW. The podcast will help educators and learners experience the "buzz" of connecting with MIT faculty, and encourage listeners to access OCW content.

MITx Digital Learning Lab

The MITx Digital Learning Lab is a joint program between MIT Open Learning and MIT's academic departments. Their goal is to learn, collaborate, and innovate with digital learning on campus and beyond. The Lab is composed of Digital Learning Scientists and Digital Learning Fellows who play a critical role in advancing digital learning initiatives across MIT.

Educational innovation: The model of the Digital Learning Lab, embedding subject matter experts with expertise in digital learning who can collaborate with faculty within the departments, is helping to expand the use of technology in teaching and learning at MIT and for the world. We aim to help develop a new pathway for "learning engineers."

Impact: Expand the production pipeline of MIT MOOCs for learners around the world. Improve MIT on-campus teaching and learning through new educational technologies and pedagogies.

Current work: The Digital Learning Lab is developing 11 new courses and rerunning nearly 35 more existing courses, across 12 different departments in the 2019-2020 academic year, as well as continuing to grow their community of practice and research efforts in teaching and learning with technology.

MIT Bootcamps

MIT Bootcamps programs educate future entrepreneurs worldwide on new technology, innovation, and entrepreneurship techniques and connect students of diverse professional backgrounds globally through a combination of online and in-person programs.

Educational innovation: Pioneering and financially self-sustaining a blended learning program, Bootcampers successfully complete four online courses and apply for an intensive one-week, in-person session. Program topics include entrepreneurship, sports entrepreneurship, venture scaling, healthcare innovation, and technology innovation.

Impact: More than 1,200 learners from 100+ countries have completed a Bootcamps program. Students have gone on to create more than two hundred ventures that have raised more than $70 million worldwide.

Current work: MIT Bootcamps are experimenting with a new forum, gathering accomplished leaders in the fields of music, the arts, technology, research and business. This gathering builds upon the Vienna-style debate, bringing seemingly disparate sides of an issue to consensus through friendly collisions.

MIT Refugee Action Hub (ReACT)

ReACT combines MIT's educational strengths — classroom instruction, online learning, and practical experience — to deliver contextualized learning and provide enriching pathways for talented and motivated refugees and internally displaced persons around the world.

Educational innovation: Designed specifically for the needs of refugees and other displaced persons to continue their education and career pathways, ReACT's blended programs combine online learning with practical experience.

Impact: In the program's inaugural class, 95% of the refugee students in the Computer and Data Science Program graduated, 75% of newly employed students attributed their new employment opportunity to ReACT, and more than three-fourths of all the students are now considering entrepreneurship or a start-up as a career option.

Current work: ReACT is currently cultivating relationships with on-the-ground partners in a number of regions as the program looks to scale globally and consider the best sustainable models for delivering high quality blended learning and career pathways.

ON OUR MINDS

In the age of artificial intelligence, MIT Open Learning is exploring how to best prepare children and young students to flourish in a future where they will not only need to work with AI-enabled technologies, tools, and solutions — but also be able to design them. With Associate Professor Cynthia Breazeal of the MIT Media Lab and the Quest, Open Learning seeks to develop the first comprehensive AI K-12 curriculum to prepare the next generation to be ethical users and designers of AI.

Research

Advancing fundamental and evidence-based research on the science of learning and education informs and guides our digital and residential learning efforts on campus and beyond. We translate and incorporate these findings into our teaching and learning tools and practices to ultimately prepare learners of all ages for future-ready skills and share such insights with a global community of educators, researchers, and policy makers.

MIT Center for Advanced Virtuality

The MIT Center for Advanced Virtuality pioneers innovative experiences using technologies of virtuality.

Educational innovation: The Center explores the vast potential of virtual and augmented reality and other immersive media technologies to impact teaching, learning, and storytelling.

Impact: The Center is enhancing our capacity to assess the learning, social, and cognitive impacts of technologies of virtuality. The leadership of the Center's director Professor D. Fox Harrell, who brings his cross-disciplinary expertise in computer science, AI, and the arts, is positioning MIT as the premier academic creator of expressive virtuality experiences for social impact.

Current work: The Center has entered into a collaboration with the Universal Hip Hop Museum and Microsoft on a project which provides an interactive journey through Hip Hop history, from the 1970s to the present. Other ongoing Center projects include:

- Project VISIBLE (Virtuality for Immersive Socially Impactful Behavioral Learning Enhancement), which will result in a VR platform supporting sociability development, i.e., learning "competencies such as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making" that have been deemed 21st-century workplace skills.

- The Virtual Truth Project: Restabilizing Reality with Immersive Storytelling, which includes development of novel tools and pedagogical mechanisms designed to create a more discerning public regarding technologies used for misinformation.

MIT Playful Journey Lab

The MIT Playful Journey Lab uses emerging technologies and a playful assessment approach to support the development of future-ready skills and explore frontiers in lifelong, lifewide learning.

Educational innovation: The Lab is at the forefront of design and use of innovative approaches to embedded assessments in learning, developing technologies and tools that validate the skills expressed in playful exploration and creativity that are not captured in standardized tests and traditional forms of assessment.

Impact: By building future-ready skills such as self-reflection, collaboration, and creative problem-solving, the Lab empowers young learners to have increased agency over their own education, and not only cope with the influence of technology-driven change and the impact of globalization, but play an active role in shaping the future of work and life.

Current work: Current projects include creating embedded assessment toolkits for maker educators and teachers, developing and testing game-based assessment models for math classes, and working with the MIT Integrated Learning Initiative to map out the role of assessment within the emerging field of learning engineering

The MIT Integrated Learning Initiative (MITili)

MITili is an interdisciplinary research initiative that works to fund, connect, and disseminate research on the science of learning, learning best practices, and learning effectiveness.

Educational innovation: MITili's efforts support scientific, evidence-based research on learning, from the underlying science of neurons to the impact of education policies on nations, to deepen our understanding of how people learn and how they can learn better.

Impact: MITili has awarded nearly $1.5M in research grants to MIT faculty.

Current work: Current MITili research projects are examining the effects of virtual reality in learning, real-time biofeedback in the classroom, and co-reading strategies to improve child-parent dialogic outcomes. They are also part of the collaboration Reach Every Reader with the Harvard Graduate School of Education (HGSE) and Florida State University, to build a simple, effective solution that ensures every student can unlock the wonder of words and stories.

> *"There is very little objective evidence that the standard forms of teaching are as effective as they could be. Our goal is to look at both fundamental mechanisms of learning that are relevant to education and also be involved in evaluation or assessment of ways in which we think we can improve learning.*
>
> - John Gabrieli, Director of MITili and the Grover M. Hermann Professor in Health Sciences and Technology

ON OUR MINDS

Open Learning is looking to the future of workforce education as part of the Institute-wide Task Force on the Work of the Future, an interdisciplinary effort to study emerging workforce trends and develop innovative models of education to prepare people with the skills to thrive in the new workforce landscape. Vice President for Open Learning Sanjay Sarma and William Bonvillian, former Director of the MIT Washington office, are investigating new educational models to best address workforce readiness within the United States, particularly for lower- and middle-class populations in industries most displaced by globalization and new technologies.

The Abdul Latif Jameel World Education Lab (J-WEL)

An initiative of MIT and Community Jameel, J-WEL works with its global member organizations to promote excellence and transformation in education at MIT and worldwide.

Educational innovation: J-WEL member organizations work with MIT faculty and staff through online and in-person collaborations, workshops, research, and other engagements to address global opportunities for scalable change in education.

Impact:

- *J-WEL pK-12* is reinventing pre-school, elementary, middle, and high school education to develop communities of the future thinkers and doers of the planet by engaging growing numbers of diverse learners and educators through design, research and implementation of educational innovations.
- *J-WEL Higher Education* works with global colleagues in a high-impact, outcome-driven way, towards the three A's of higher education: Access, Affordability, and Achievement.
- *J-WEL Workforce Learning*, its members and other cooperating institutions are rethinking the process of workforce learning to best provide the right skills to the right people at the right time, at scale.

Current work: J-WEL is working to address today's pressing educational challenges in local contexts through projects like Transforming Refugee Education towards Excellence (TREE) which supports teacher capacity and wellbeing in Jordan, and using MITx online courses to develop data science capacity in Uruguay through a collaboration with the CoLAB Alliance.

J-WEL has 30 members across its three collaboratives focused on pK-12, higher education, and workforce learning.

pK-12 at MIT Open Learning

MIT Open Learning supports a number of pK-12 efforts, including home of the pK-12 Action Group, whose mission is to bring MIT's unique "mind and hand" learning approach beyond campus to pre-Kindergarten through grade 12 (pK-12) learners and teachers around the world.

Educational innovation: Extending MIT's educational resources to both pK-12 schools and informal learning environments with a focus on project-based learning, STEAM curriculum, teacher education, and computational thinking.

Impact: The pK-12 Action Group provides visibility and funding to the larger pK-12 ecosystem across MIT, which composes of over 40 programs that bring learning opportunities to kids, teachers and schools.

Current work: Open Learning is embarking on an ambitious new effort to reinvent middle school education through the development of new curriculum, pedagogy, and tools to serve middle school educators and school systems. We are also launching a volunteer and engagement program for alumni to better leverage the passion and energy of MIT alumni to transform pK-12 education in their local and global communities.

MIT Video Productions (MVP)

MIT Video Productions offers Emmy® Award-winning media production and publication services to the MIT community in support of education, research, and outreach.

Educational Innovation: As a supporting unit of the Office of Digital Learning, MVP's experienced team works with academic programs, departments, and Institute initiatives to communicate and share our collective work to reach desired audiences through video—including alumni, students and faculty, and the greater global community—in a way that is accessible and shareable.

Impact: MVP provides video production, post-production, and streaming services to over 120 Departments, Labs, and Centers across the MIT community every year. Providing support to teaching and learning, marketing, and the stories that make MIT a dynamic and exciting place of discovery. Through these services MVP provides a window into the MIT campus with over 212 livestreams with 674,304 views each year, with much of this content being seen through various MIT websites and MIT's social media feeds.

Current Work: Recording and streaming of MIT Climate Symposia series, classroom captures and student reviews, partnership with various Open Learning units particularly OCW, MITx MIT xPRO, and MIT Bootcamps. Emmy nominated documentary "The Great Clarinet Summit," and the long form documentary on the rise of the BioTech industry "From Controversy to Cure: Inside the Cambridge Biotech Boom."

Support MIT Open Learning

Open Learning amplifies MIT's many educational innovations and initiatives in areas from pK-12 education and emerging technologies to learning science research and digital and blended learning—and makes them available to learners and educators across all levels of education, including underserved populations globally. With your support, we can advance education to better prepare learners for today's workforce and equip future generations with the knowledge and skills to innovate and adapt to the demands of tomorrow's challenges, building the foundation for a better future for all.

For more information or to explore ways of supporting our work:

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Open Learning leads MIT's commitment to reimagine education in a changing world and equip learners and educators with the skills and knowledge to create a better future.

MIT Open Learning is....

...MIT Abdul Latif Jameel World Education Lab (J-WEL)

...MIT Center for Advanced Virtuality

...MIT Bootcamps

...MIT Horizon

...MIT Integrated Learning Initiative (MITili)

...MIT OpenCourseWare (OCW)

...MIT pK-12 Action Group

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...MIT Video Productions (MVP)

...MITx

...MITx MicroMasters Programs

...MIT xPRO

...MITx Digital Learning Lab

...Residential education

....the future of teaching and learning.

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