

# Choices and Challenges

## *Lessons Learned in the Evolution of Online Education in Support of Workforce Development*

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# Where is this?



# Bangalore: Silicon Valley of India

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# And what is it like to get there...



# An education and training opportunity?



# Online Education Today...

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- **Successfully established with mixed elements of hype and reality. Continues to grow and is becoming a larger part of an education portfolio offered to learners of all ages. And when implemented correctly, can be as good as or even better than traditional classroom learning.**



- **Many providers ranging from traditional institutions to collaborations to start-ups.**
- **Learners select online providers based on quality (pedagogy, content and service), cost, brand and especially those most able to aid in employability and career growth.**

# The Workforce of the Future

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***“The illiterate of the 21<sup>st</sup> century will not be those who cannot read and write, but those that cannot learn, unlearn and relearn.”***

*Alvin Toffler “Rethinking the Future”*

# Industry and Education

Summary from Sloan funded Stanford/NYU/UMichigan Workshops with Corporate VPs of Education and Training

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- **The US workforce requires continuous, career-long education to maintain competitiveness and for employees to have economic security. Gap exists between education levels and changing labor market needs.**
- **Increased work and family demands and social obligations reduces time for education and training.**
- **Mobility of many employees means traditional approaches to education is difficult, especially during work hours .**

# Industry and Education

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- **Increased industry interest in outsourcing education & training to university providers. Paradox in some companies of no time/no \$\$.**
- **Higher ed asked to be more responsive to specific education development needs of industry and employees at all levels.**
- **Companies want to work with colleges and universities who know how to teach students to transfer learning to industry applications.**

# Industry and Education

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- **Companies are linking learning and university partnerships to business strategies -- and a “return on learning” investment is expected.**
- **Industry wants providers of degrees, courses and certificates to use proven, cost-effective and efficient approaches to learning.**
- **Strong movement towards online education with virtual, blended and F-2-F classrooms being merged. Want learning options independent of time and distance.**

# The Workforce of the Future

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***“In the new economy you graduate and you’re set for 15 minutes. Working and learning are fast becoming the same activity.”***

*Don Tapscott “The Digital Economy”*

***“The ability to learn faster than your competitors may be the only sustainable competitive advantage.”***

*Peter Senge “The Fifth Discipline”*



# The Challenge

**What Do Lifelong Learners and Employers Want, Need and Expect of Online Education Providers?**

# The Online Learner Challenge

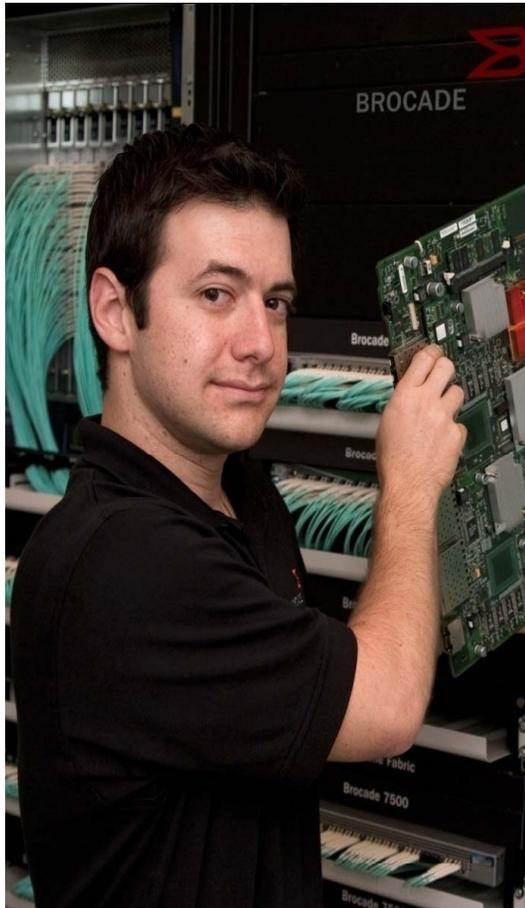
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- **Assume responsibility for increasing personal market value as a means to advance in their careers. Busy yet anxious to learn.**
- **Access to learning anytime and anywhere. Learners want education to be part of the work day as well as having a mobile, on-the-go, 24/7 connection.**

# The Online Learner Challenge

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- **Convenience and flexibility with a range of course and delivery options and multiple avenues for learning.**
- **Wide range of online degree, certification and career-building programs with flexibility around when programs start and end. Push is for short, focused modules and “learning experiences” versus courses.**

# The Online Learner Challenge

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- **Well-designed, engaging, relevant and continuously updated programs which facilitate the transfer of learning to direct application. Rapid mastery of knowledge and skills – practice oriented education – is the desire. Want mix of formal and informal education with a “high value” pathway.**
- **Emphasis on active, challenging scenario-based learning using real, vivid and familiar examples. Think games, simulations and shared virtual environments.**

# The Online Learner Challenge

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- **Self-directed, demand-driven learning with control of the sequence and pace of learning. Impatient with inefficient methods. Want to be able to “test out”.**
- **Choice of synchronous, asynchronous and blended learning options with small class sizes.**

# The Online Learner Challenge

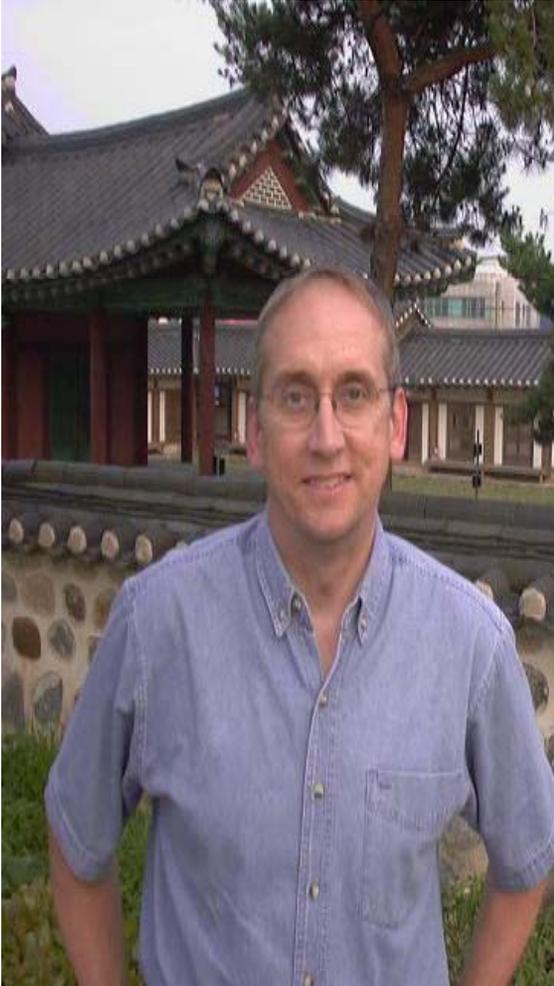
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- **Personal learning paths based on assessment of knowledge gaps, learning styles & preferences. Think TIVO. Shift from “just-in-case” to “just-in-time” to “just-for-me” education.**
- **Expert facilitation – F-2-F or remotely – which includes opportunities for advising, tutoring, coaching and mentoring.**

# The Online Learner Challenge

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- **Participation in a learning community using social networking tools for peer-to-peer learning and relationship building. Shift from “connectivity to collectivity”.**
- **Chance to learn, refine and apply online collaboration skills and knowledge management tools in group learning situations. Interest in multicultural and international interactions.**

# The Online Learner Challenge

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- **Instruction from providers with a recognized brand & reputation. Will consider content integrated from a mix of higher education institutions, professional associations, publishers, govt agencies and companies – but want formal “certification” from a college, university or recognized authority.**
- **Preview of courses, rating of content and assignments, and review of teacher evaluations before registering.**

# The Online Learner Challenge

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- **Development of digital career portfolio to include projects, instructor reviews, etc.**
- **Personal support services with a focus on “student as customer”. Elimination of delays and inefficient procedures regarded as essential.**
- **Competitive and variable pricing.**

# The Online Learner Challenge

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- **Timely, detailed and meaningful forms of assessment and feedback. Desire a data-rich pathway to improve the learning experience.**
- **Delivery to mobile devices which are smarter, faster, cheaper and usable anywhere.**
- **Ongoing educational renewal over an entire career with commitment from their ed provider to support learning for a lifetime.**

# So where are we headed?

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- **Access to learning independent of:**
  - time
  - distance
  - economic status
  - physical disability
- **Move instruction, not people to:**
  - save time
  - reduce cost
  - provide choice
  - improve learning
- **Application of new and creative education approaches to meet the needs of companies and employees.**

# Venture Capital Prospectus

## Online Higher Education Company

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### *Higher Education...*

- **Is one of the most fertile new markets for investors in many years.**
- **Presents the opportunity for very large scale activities.**
- **Has many disgruntled current users.**

# Venture Capital Prospectus

## Online Higher Education Company

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- **Generates a large amount of revenue and its market is increasing and becoming global.**
- **Poorly run, low in productivity, high in cost, and relatively low technology utilization.**
- **Existing management is sleepy after years of monopoly and field is ripe for takeover, remaking and profits.**

# Online Education Entrepreneurs Versus Traditional Institutions

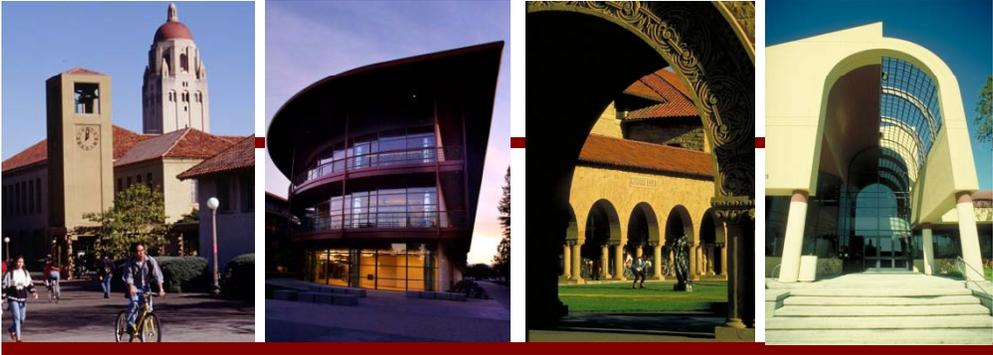
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- **Larger investments, more resources.**
- **Nimble, flexible, responsive and speedy to market with a deep understanding of students and their needs.**
- **Apply commercial grade marketing, sales, customer service, course design and production skills.**

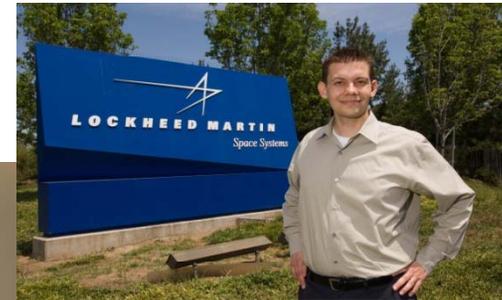
# Online Education Entrepreneurs Versus Traditional Institutions

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- **Ability to easily capitalize on instructional technology.**
- **Freedom from academic politics and bureaucracy with strict instructor evaluation measures.**
- **Regard education as a commodity.**



# Online Education to Support Industry Needs How Does Stanford Do It?



# Stanford University

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- **Located in Silicon Valley and recognized as offering high quality research and education programs.**
- **Schools: Engineering, Medicine, Law, Business, Humanities, Earth Science and Education.**
- **Research: over 4500 projects at \$1.1B**



- **Very strong history of connections to industry.**

# Stanford University and Industry



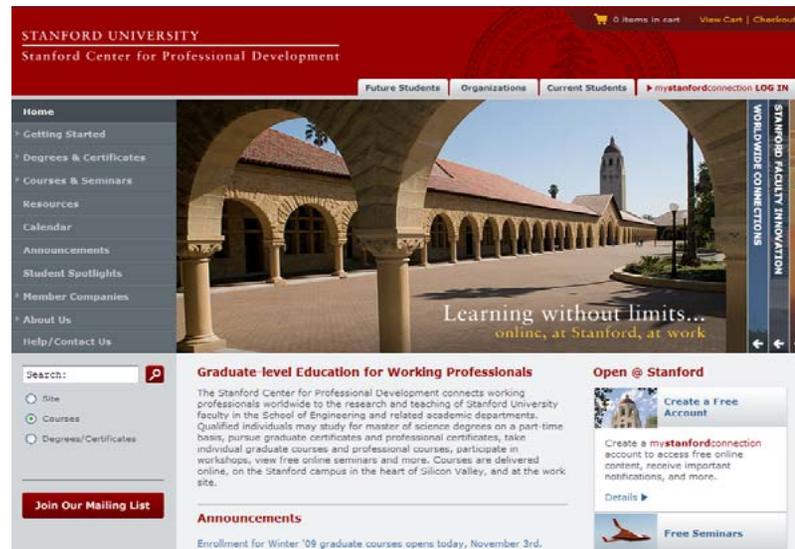
***“Stanford University fosters a climate where collaboration with industry thrives, generating both breakthrough discoveries and the science and technology that can support continuous innovation.”***



***“With a long history of very productive relationships with corporations of all sizes, from startups to mature, successful enterprises, Stanford provides firms with education, research partnerships, consulting, and connections to world class faculty and students.”***

***- Stanford Corporate Relations***

# Stanford Center for Professional Development



**SCPD collaborates with Stanford faculty and industry experts to develop and deliver courses and programs online, on campus and at work to meet the lifelong education needs of workers in industry. Offerings are designed to support career growth, increase productivity and strengthen industry and individual competitiveness.**

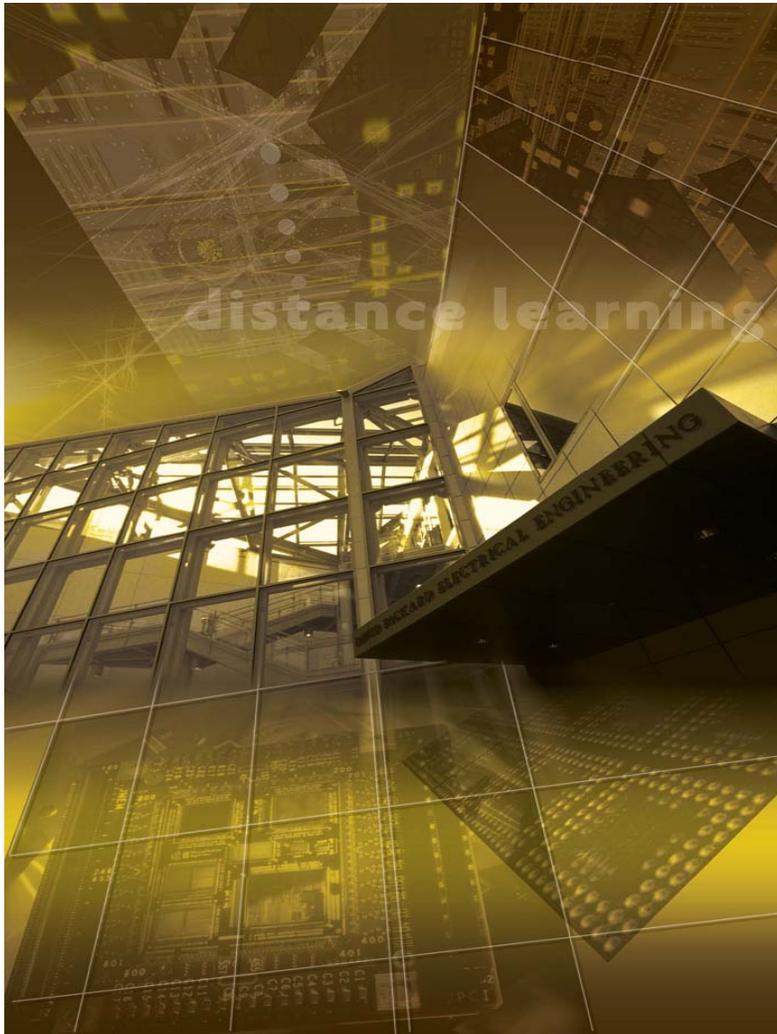
# SCPD Participants

## 2000 companies in 60 countries



# The Lifelong Learner Challenge

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***“What our employees are saying is that the demands of their jobs are such that they can’t get away from work. Since they are working many hours a week any education they get has to be at their convenience and available online.”***

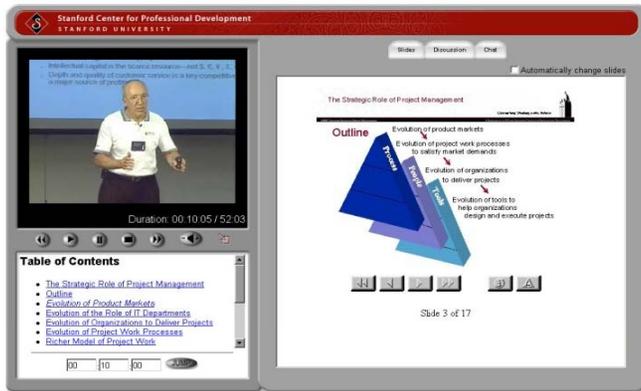
***- Manager of Education, Amp Inc.***

# Industry Education Delivery

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- **Stanford Online.**

# Stanford Online



- **Delivers asynchronous courses, certificates and degree programs to industry students at over 2000 companies in 60 countries.**
- **Rapid production process.**
- **Courses updated annually.**
- **Uses community and social tools for interaction.**
- **Highly valued by industry and campus students.**

# Industry Education Delivery

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- **Stanford Online.**
- **Tutored Video Instruction.**

# Tutored Video Instruction

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- **Tutored Video Instruction (TVI) is a collaborative learning approach in which a small group of students -- a cohort model -- studies a video of a lecture at a company site.**
- **Tutor stops the video to address questions, replay sections, discuss ideas, relate to workplace activities, etc. Students receive more individualized help and attention from the tutor and peers and informal atmosphere encourages more participation sharing and involvement.**
- **Tutor acquires management and leadership skills.**
- **TVI student grades statistically higher than those of the on-campus students.**
- **Also successfully used with at-risk high school students and prison inmates.**

# Industry Education Delivery

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- **Stanford Online.**
- **Tutored Video Instruction.**
- **Flipped classroom.**

# Flipped Classroom

*Shift from teacher-driven instruction to student-centered learning*

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- **Digital technologies shifts instruction outside of the group learning space to the individual learning space, usually via videos.**
- **Class time becomes available for students to practice skills, collaborate with peers on projects and receive feedback.**
- **Instructors devote more time to coaching, assisting and inspiring students.**
- **Students become the agents of their own learning rather than the object of instruction.**

# Industry Education Delivery

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- **Stanford Online.**
- **Tutored Video Instruction.**
- **Flipped classroom.**
- **Mobile learning.**

# Mobile Delivery

## Introduction to Electronics

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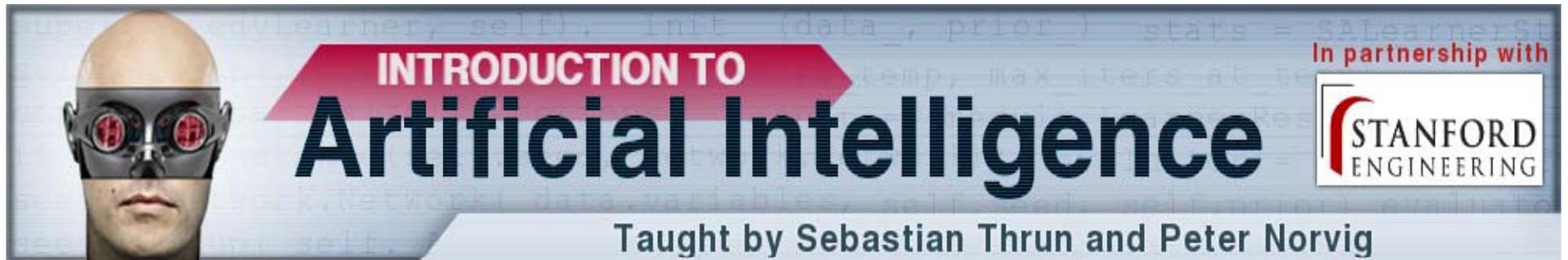
- **Students stream course videos and download support materials to mobile devices.**
- **Participate asynchronously at industry sites with support from faculty, teaching assistant or industry facilitator.**
- **Includes synchronous discussion and team activities.**

# Industry Education Delivery

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- **Stanford Online.**
- **Tutored Video Instruction.**
- **Flipped classroom.**
- **Mobile learning.**
- **Massively Open Online Courses (MOOCs).**

# Massively Open Online Courses Stanford's First Offering



- An experiment in distributed education in fall of 2011, the course was offered free and online to students worldwide. The course, led by a distinguished AI faculty member and the director of research at Google, offered materials, assignments and exams similar to the campus course and included feedback on progress and a statement of accomplishment.
- Enrollment: over 150,000    Completion: 7157
- Left Stanford and founded Udacity

# Massively Open Online Courses

## What are They?

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- **Online courses aimed at large-scale participation and open access via the web. No fees or registration as a regular student. Targets: high schoolers, college students and adults.**
- **Students access course materials, online assessments, discussion group tools and materials developed during the course. Automated feedback through online assessments and crowd-sourced interaction for peer-review and group collaboration.**
- **Typically no academic credit, but other forms of assessment or certification may be available.**

# Massively Open Online Courses

## Why do it?

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- **Experiment to improve education for on campus students e.g. flipped and hybrid classes.**
- **Meet responsibility to be a global citizen by helping spread educational opportunities beyond the campus.**
- **Pressures to lower cost of education.**
- **Channel to potential students and alumni.**
- **Enhance prestige for institution and faculty.**

# Massively Open Online Courses Who Are the Major Players?

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## Coursera

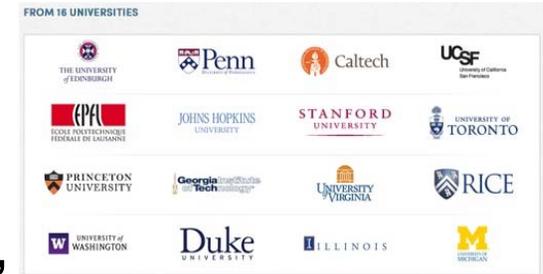


# Massively Open Online Courses

## Coursera

- 214 free online courses from 33 universities including Stanford, Duke, Princeton, UPenn, Johns Hopkins, Cal Tech, Hong Kong Science and Tech, Georgia Tech, UFlorida, UBrit Columbia.
- **Subjects: Computer Science, Healthcare, Medicine, Biology, Society, Networks & Information, Humanities & Social Science, Mathematics, Statistics, Economics, Finance and Business.** Nearly 3M students have registered for courses.
- \$22M in venture capital.
- American Council on Education has approved five courses for college credit by taking exams through ProctorU, a service that connects proctors and students via webcam for \$60-\$90.

# Coursera



# Massively Open Online Courses

## Udacity

- 22 courses in engineering, math and physics with students in 203 countries. Partners include Google, NVIDIA, Microsoft, Autodesk, Cadence and Wolfram.
- Highly interactive, self-paced and project based using bite-sized videos and real-world examples while engaged in an active community. All are closed captioned and many subtitled in other languages. \$16M in venture capital.
- Students can take proctored exam through Pearson VUE for \$89 that will "count towards a credential that is recognized by employers".
- Colorado State University's Global Campus and Antioch offers transfer credit. New partnership with San Jose State to pilot three courses for college credit.
- Offers student matching service for prospective employers.



# Massively Open Online Courses

## Others

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- edX evolved from MITx. Now includes MIT, Harvard, UC Berkeley, UTexas, Wellesley and Georgetown. Currently 24 courses. \$60M invested by MIT and Harvard.



- Futurelearn – Launched by Open University and includes 33 UK universities and British Library.



FUTURELEARN

- MOOC2Degree – 40 universities with relationship to Academic Partnerships, a company that helps public universities move their courses online.



# MOOCs: still an experiment...

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***“The optimists see MOOCs expanding access to previously disenfranchised groups of students, developing new methods of pedagogy for deeper, more sustained learning, and building global communities focused not on the latest fad or celebrity, but on education. Doomsayers predict the end of liberal learning, a generation unable to communicate in face-to-face classrooms, and even the eventual demise of the university.”***

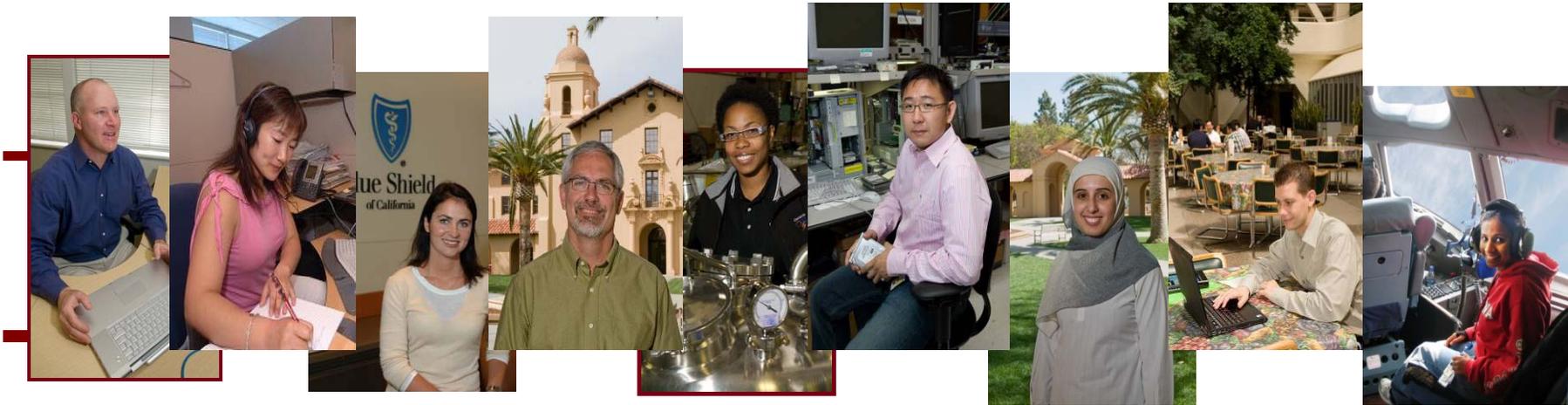
- **Studying Learning in the Worldwide Classroom: edX’s First MOOC. Journal of Research and Practice in Assessment - Summer 2013.**

# Choices and Challenges

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***“Impressive advances in technology over the past few years provide hope that technological solutions, intelligently applied, can allow greater access, higher quality and lower cost per learner. To achieve massive improvements through technologies will require learning from past mistakes and careful analysis of how to innovate broadly and durably.”***

**- Sir John Daniel  
Former Vice Chancellor, UK Open University**



# Converting Lessons Learned

## Five Recommendations for Online Education Providers in Support of Workforce Development

# Five Recommendations

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## 1. Think strategically.

*How are you different than what others are trying and why is this approach of value to the workforce audience you want to serve? Are you doing something unique? What data do you have that can be used to prove this difference and value?*

## 2. Find your sweet spot.

*What's the intersection of industry and community needs, institutional strengths, faculty interests and what people will pay for? Is it consistent with your mission, values, strengths and areas of distinction? Are you building upon previous successful programs and what you learned from failures?*

# Five Recommendations

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## 3. Think about scale.

*Do you have the right resources: human, financial & technical? Can you begin small in order to experiment, pilot, learn, improve and grow? Are there outside partners or alliances you can work with to strengthen and extend your program? How can you market offering to achieve scale and sustainability?*

## 4. Create a service mentality.

*Have you identified every possible service interaction so that students, employers and instructors have a productive, positive rewarding experience? Are you fast, flexible and attentive?*

## 5. Measure everything.

*Are you assessing learning effectiveness, application to work, access to course, cost effectiveness and satisfaction of learners, instructors and employers?*

# Final Thoughts...

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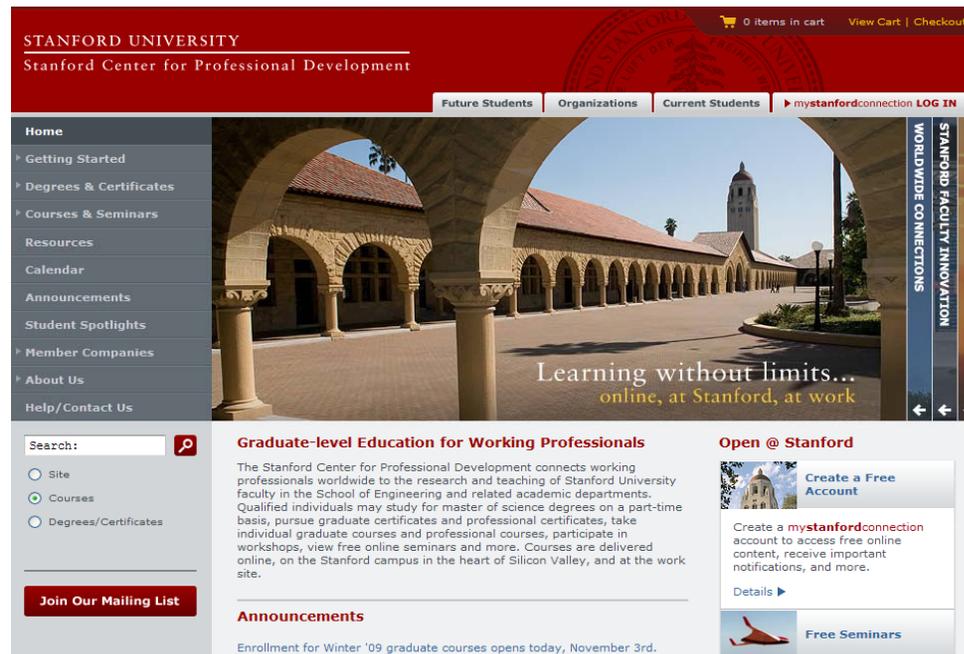
- **Online education in support of industry is not about technology – it is about ways to innovate and improve learning in order to strengthen competitiveness, support career growth & improve employee satisfaction and security.**
- **Think about delivering education as if you lived in Silicon Valley. Question everything like an entrepreneur. Disrupt and innovate and try something new. Have zero tolerance for mediocrity. Think boldly and daringly, execute steadily.**
- **The scarce resource today is not bandwidth, but people who can create and innovate in the knowledge age.**

# Remember...

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**Technology has limitations on what it can accomplish. You do not!**

# Questions and Conversations



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