Creating Graduate & Professional Education for Industry Impact

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Agenda

2:00-2:20  SCPD: Development of a Professional Portfolio
2:20-2:45  Using Design Thinking Tools to Envision the Future
            Trends
            Personas
            Visioning Statement
2:45-3:10  Group Presentations
3:10-3:25  SCPD Future State - Delivering Content in a
            MOOC World
3:25-3:30  Questions and Discussion
Sustaining a Legacy

- Sustaining Terman’s legacy as SoE educational link to industry
  - Graduate degree, graduate certificates and individual courses
  - Non-degree certificates and courses
- Life-long learning is part of the SoE mission
  - Symbiotic teaching & research relationship
  - Programs tailored to the needs of professionals

“When we set out to create a community of technical scholars in Silicon Valley, there wasn’t much here and the rest of the world looked awfully big. Now a lot of the rest of the world is here.”
- Frederick Terman, Provost
Flashback to mid 1990’s
Bridging Stanford and Industry

Industry Education

Stanford University Curriculum

Academic Programs

Professional Education
Bridging Stanford and Industry

• Over 400 industry members
• Industries from aerospace to e-space, from VC to VLSI
• From the Bay Area to Barcelona to Beijing
• Delivering more than 10,000 course hours
• To more than 6,000 students/year
• Hitting the SCPD site more than 250,000 times per day
SCPD: Programs for Industry

• Academic Programs
  Graduate level for credit

  • Master’s degree programs (*Honors Cooperative Program*)
  • Academic certificate programs (*Non Degree Option*)
  • Credit courses and seminars (*Non Degree Option; Audit*)
SCPD Portfolio

• Disciplines/Departments
  – Aeronautics & Astronautics
  – Chemical Engineering
  – Civil & Environmental Eng
  – Computer Science
  – Electrical Engineering
  – Management Science & Engineering
  – Materials Science & Eng
  – Mechanical Engineering

• Interdisciplinary Areas
  – Bioengineering
  – Bioinformatics
  – Photonics
  – Nanotechnology
  – Networks
  – Science, Technology, Society
  – Scientific Computing & Computational Mathematics
Part-time Master’s Degree Programs on Campus and at a Distance

**Engineering Departments**
- Aeronautics & Astronautics
- Chemical Engineering
- Civil & Environmental Eng
- Computer Science *
- Electrical Engineering *
- Management Science & Eng *
- Materials Science & Eng
- Mechanical Eng

**Other Disciplines**
- Applied Physics
- Education – Learning Design & Technology

**Interdisciplinary Programs**
- Scientific Computing & Computational Mathematics
- Others in planning

* MS degree can be completed at a distance.
Academic Certificate Programs
Over 20 programs - Designed for Industry

- Departments
  - Aeronautics and Astronautics
  - Computer Science
  - Electrical Engineering
  - Management Science & Eng
  - Materials Science & Eng
  - Mechanical Engineering

- Interdisciplinary Programs
  - Bioinformatics
  - Product Creation and Innovative Manufacturing

- Designed for industry learners at a distance
  - Delivered through SCPD distance learning technologies
  - Key audience: Non Degree Option (NDO) students
SCPD Trends (circa 1995)

Customers want:

- Shorter, better access and more practical education & training, delivered anytime, anywhere
- A clear educational path with certification
- More choice, from overview to cutting edge content and better price performance
- Learner-centric, with assessments, simulations
- Quality education from brand with uncompromising customer service aligned to corporate strategy
- Education from providers that will remain in business AND differentiate students, companies
- Community and collaboration; networks
SCPD Enrollment Comparison
Professional Education

• Develop effective, time-efficient short courses for specific technical professional and engineering management audiences
• Combine theory and practice
• Focus on intersection between industry and faculty research
• Offer CEU’s and Certification only
Stanford Online

- Courses updated to maintain currency
- Approach is transparent to faculty
- 24/7 access and technical support
- Corporate technology partnerships with Dell and Microsoft
Creating Professional Education

• Strengthens SoE relationships with industry and alumni by providing education and outreach, generating revenue (depts, faculty, Stanford) for additional research

• ProEd leverages faculty, labs, centers IP to educate industry, combining theory and practice

• ProEd enables SCPD to provide career long education – portfolio perspective

• ProEd is catching up to the competition: MIT, CMU, Illinois, Michigan, all have long-standing ProEd programs

• ProEd extends SoE reach contributing to brand building, alumni loyalty and revenue generation
Creating a Professional Education Unit

FROM

- High priced product in the market
- Faculty driven content delivery
- Limited customer contact
- Rejecting 8 in 10 candidates
- No flexibility in course delivery
- Stanford only content delivery

TO

- Modest, flexible pricing
- Industry informed program offerings
- High touch customer experience
- Accept 8 in 10 candidates
- Enroll anytime, flexible modes
- Blend Stanford & industry faculty
Design Thinking & Innovation

How you can use Innovation tools!
Assignment

Imagine you have a new incoming Dean. How does your group convey where you would like to be in 5 years? Use the following tools in your 3-minute presentation.

1. What **TRENDS** are most important as SCPD considers a future state?
2. What can we envision about SCPD’s future customer and how should **PERSONA** be used to frame the story?
3. What is a compelling future **VISION** which will capture the imagination of the leadership at Stanford?
Design Thinking Process

- Empathize
- Define
- Ideate
- Prototype
- Test

*Design Thinking Model, David Kelley, Prof. Mechanical Engineering*
Convergent versus Divergent Thinking

Tim Brown, IDEO

Marc Schar, Consulting Professor, Stanford University
Circles Exercise

Fill in as many circles as possible in 30 seconds:
Three Innovation Tools

◆ TRENDS/PERSPECTIVE ◆ PERSONAS ◆ VISIONING
Trends

What are the trends which will affect education in the future? Think \textit{MACRO}
Persona

Who are your current users?
Who will be your future users?

Chris @ 32 yrs
MS in US
Professional
2 kids
MS windows
Works out
Seeks stability

Anoop @ 21 yrs
BS India
Looking for work
No kids
Mobile phone
Hacker
Seeks education for a job

Chris @ 39 yrs
MS
Professional
2 HS kids
Mobile platform
Works out
Looking to change career

Anoop @ 28 yrs
BS India
Mid manager
One kid
Tablet pc
CS security
Seeks education for promotion
Persona

Tell a story about an imaginary student in the future who will be influenced by the TRENDS.

Sketch an imaginary scenario with as MUCH DETAIL as possible to tell a possible story using the TRENDS to color her story.

Example: Alka is a 25-year old Indian-born engineer educated at IIT Bombay and now working at Boeing who needs to supplement her existing masters degree with structural engineering content. To support her, our organization must…
Visioning Statement

Vision statement must be compelling, emotional and point to the **BIG** picture.

- Climb Mount Everest
- Land on the Moon - John F. Kennedy
- Cure Cancer - Genetech
- Build a self-driving car

Often to sell such a concept inside the university, it is effective to frame the question ‘What if…”

What if the SCPD…

**FROM TO** statements can also be very useful to **VISION**
Assignment

Imagine you have a new incoming Dean. How does your group convey where you would like to be in 5 years? Use the following tools in your 3-minute presentation.

1. What **TRENDS** are most important as your dean considers a future state?
2. What can we envision about your organization’s future customer and how should **PERSONA** be used to frame the story?
3. What is a compelling future **VISION** which will capture the imagination of your leadership?
SCPD – The Results
SCPD’s Organizational Journey

- SCPD’s founding mandate was to bring the Stanford SoE experience to graduate students at a distance. Now the mission has expanded to serve engineering undergraduate and graduate students on campus, which is the school’s top priority.

- SCPD has been at the forefront of online learning. While the underlying technologies have changed, our group has cultivated a deep expertise in online course production, online learning services, and blended learning integration that are major assets to SoE.

<table>
<thead>
<tr>
<th>Year</th>
<th>Past SCPD role</th>
<th>Future role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>Honors Cooperative Program</td>
<td></td>
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<tr>
<td>1960</td>
<td>Industry engagement and support</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>Facilities development &amp; operations</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>Distance education (TV satellite → cable → internet → mobile)</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Non-Degree Option Program</td>
<td></td>
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<tr>
<td>2000</td>
<td>Online learning</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Professional education</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>Custom programs</td>
<td>SCPD has expanded its mission to directly address the SoE’s three priorities</td>
</tr>
</tbody>
</table>
The Changing Face of Education

Impact of Technology
- MOOCs
- User-generated content
- Blended learning
- New academic models

Society and Culture
- Millennial attitudes and expectations
- Pressure for practical knowledge
- Challenging the ROI of a liberal arts education

Economics
- Global economy (global education economy)
- Competitive pressure to get and keep jobs

“Evolve or die.”
– Eckhart Tolle
Forces Compelling a Change

MOOC Movement

August 2011
• Instructional design, scale and headlines

Stanford’s Creation of VPOL (VPTL)

Winter 2013
• Focus on supporting/experimenting with online learning

New SoE leadership

Aug 2012, Sept 2014
• Focus on creating change and leveraging SCPD as mission support
• SoE Priorities
  • Academic courses
  • Professional education
  • Online courses without credentials
# SoE’s Three Priorities

## School Priority

<table>
<thead>
<tr>
<th>I</th>
<th>Stanford academic courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCHOOL PRIORITY</strong></td>
<td><strong>STRAATEGIC FOCUS</strong></td>
</tr>
<tr>
<td>• Online / blending learning</td>
<td></td>
</tr>
<tr>
<td>• Enhanced learning outcomes</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>II</th>
<th>Professional education courses</th>
</tr>
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<tbody>
<tr>
<td><strong>SCHOOL PRIORITY</strong></td>
<td><strong>STRAATEGIC FOCUS</strong></td>
</tr>
<tr>
<td>• Growth in strong areas of research</td>
<td></td>
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<tr>
<td>• Lifelong learning incentives</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>III</th>
<th>Online courses without Stanford credentials</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCHOOL PRIORITY</strong></td>
<td><strong>STRAATEGIC FOCUS</strong></td>
</tr>
<tr>
<td>• MOOCs as showcase</td>
<td></td>
</tr>
<tr>
<td>• Large-scale learning laboratory</td>
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### SCPD Must Evolve for SoE & Stanford

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry only focus</td>
<td>On campus first, industry second</td>
</tr>
<tr>
<td>Technology laggard</td>
<td>Mobile, experimental</td>
</tr>
<tr>
<td>Sage on stage capture</td>
<td>Instructionally designed, modular</td>
</tr>
<tr>
<td>180 graduate courses</td>
<td>300+ graduate courses</td>
</tr>
<tr>
<td>Service, facilities provider</td>
<td>Faculty course partner</td>
</tr>
<tr>
<td>Only provider</td>
<td>Preferred option</td>
</tr>
<tr>
<td>Hoping for good outcomes</td>
<td>Assessing <em>all</em> outcomes</td>
</tr>
<tr>
<td>Revenue focused</td>
<td>Revenue neutral</td>
</tr>
<tr>
<td>Independent, self-reliant</td>
<td>Interdependent, part of the SoE</td>
</tr>
</tbody>
</table>
## Stanford Engineering Undergraduate Persona

### Chris

#### Background
- Grew up in Australia
- Running web projects since age 12
- Self taught coder, sold first product in 7th grade

#### Stanford experience
- Undergrad sophomore, declared CS major
- Frustrated with lack of dept. classes for real-life professional development

#### Motivations
- Desires hands-on practical tools for immediate career benefit
- Wants more help understanding how to apply (versus find) information

#### Technology use
- Grew up using Google services and smartphones through high school

#### Class learning needs
- Prefer a variety of active learning methods, so often bored by in-class lectures
- Likes flipped classroom model so he can spend class time interacting more with peers
- Learns best through visual channels and by personal experimentation
- Prefers a multi-modal learning environment for extra stimulation and the option to multi-task across his preferred devices
- Planning to be a Teaching Assistant next year

#### Learning activities outside the classroom
- Started a business venture called “Propeller” in May 2013 to coach other Stanford CS majors on their business ideas, already signed up 6 peers, modeled initiative after Google APM (an accelerated leadership program)
- Watches short videos on YouTube and other websites for additional learning on demand
Vision

To educate a global community of professionals through flexible Stanford learning experiences, inspiring change in individuals, teams and organizations.
Re-Organization—Future-Ready for Innovation & Service

SoE Dean

Paul

SU: VPTL, 6 SCHOOLS, REG OFFICE, OGC, etc.

MD: Carissa Little

PROGRAMS & MKTG

- Academic
- Professional
- Custom
- Digital Marketing & Comm

MD: Mike Rouan

LEARNING INNOVATION

- Learning Analytics
- Instructional Design & Educational Technology
- Innovation Lab

MD: Robert Prakash (Acting)

TECHNOLOGY & SYSTEMS

- Classrooms & IT
- Platforms & Tools
- Portals & Sys. Integration

MD: Carissa Little (Interim)

OPERATIONS

- Finance & Acctg
- Student & Client Services
- Operations & Events
Innovation and Business are Connected!

Starting and growing a business is as much about the innovation, drive, and determination of the people behind it as the product they sell.

Elon Musk, CEO Tesla and SpaceX
Questions and Discussion

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Resources

The Achievement Habit: Bernie Roth
Scaling Up Excellence: Robert Sutton & Huggy Rao
Innovation Leadership Board: Tamara Carleton
IDEO Design Thinking Blog – designthinking.IDEO.com: Tim Brown