

*Proceedings*  
*Teaching Entrepreneurship to Engineering*  
*Students*

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To Sell a Better Mousetrap

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# To Sell the Better Mousetrap

*A LearningSpace* for Entrepreneurial  
Education

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# An Observation

- Successful technology companies are as often started by non-technologists as by scientists and engineers

# Premise 1

- Invention is not enough -- creating economic value requires:
  - *Market insight*: how using the technology confers an advantage customers will pay for
  - *Business model*: that packages the technology and market insight to build a defensible competitive advantage
  - *Effective organization*: implements the business model, delivers the goods, and collects a fair price

## Premise 2

- Goal is that students *learn entrepreneurship*
  - Learn the *complete art* of entrepreneurship
  - Not just learn *about* entrepreneurship
- Two requirements:
  - Knowledge
  - Practice

# Premise 3 (Practice)

- Learning entrepreneurship is a *social activity*
  - Conceptually not difficult to understand
  - Information to be mastered
    - Economics, accounting, finance
- But, entrepreneurship is very hard to do
  - Behavioral art rather than a science
- Requires practice
  - Emphasized over the traditional information-passing in the classroom

## Premise 4 (Knowledge)

- Successful entrepreneurship is *context specific*
- Successful entrepreneurs understand:
  - Technological context
  - Societal constraints
  - Legal & regulatory framework
  - Market context
- Distributed generation, for example

## Premise 5 (alas, fact)

- University resources will be increasingly constrained
  - Students will feel time constrained
  - Productivity will be sought



# Conclusion

- Perhaps we can use technology to engineer a solution
  - Allow students to try on the relevant behaviors
  - Provide an effective tool for transfer of information
    - Discovery, not telling
  - Grows in capability with use
  - Frees faculty time for mentoring
- LearningSpace

# The Origin of LearningSpace

- An Internet space
- A variety of learning tools
  - Tutorial
  - Work spaces
  - Collaboration/mentoring spaces
  - Game/simulations
  - Experience space
- Disneyland + Children's Television Workshop
- Learner-driven

# What it does...

- Provides context for entrepreneurship
  - Unique to building technology companies
  - First context: energy/environment
  - Next: telecomputing
- Enables entrepreneurial or student team to build effective business model/plan
  - Value creation
  - Value capture

# Value Added

- For the learner...
  - Understand cumulative experience of practitioners and students in context
  - Personal interaction between learner and mentor
  - Emphasizes mentoring of teams
- For the university/incubator
  - Builds ongoing, value-added relationship with entrepreneur
  - Mission critical capability
  - Conserves resources

# Systems Architecture

## Level 1

- Entry Portal
  - Introduction
  - Instructions for use
- Data Links
  - Updated and annotated external resources
- Tutorial Resources
  - Venture finance
  - Intellectual property

# Systems Architecture

## Level 2

- Collaboration Space
  - Allows teams to work together
  - Public and private components
- Mentoring Space
- Entrepreneurs' Toolkit
  - Accounting software
  - Tax software

# Systems Architecture

## Level 3

- Game-Simulation Space
  - Replicate context of selected technology markets
  - Diagnostic tool
  - Learning tool
- Experience Space
  - Accumulates the experience of selected teams or companies

# Current Status

- Building prototype platform with NSF grant
  - Partnership in Innovation
- Preparing content: energy/environment
  - Book on technology-based entrepreneurship
  - Collecting external information resources
- Seeking partners
  - support for Simulation Space



# Challenges

- Investment
  - Building the game/simulation is a big deal
- Sustainability
  - Find a way to support and maintain the LearningSpace
  - Create not-for-profit corporation?
- Scale: international, but niche
  - Find a way to grow to critical mass quickly
  - Network economies of scale
  - Bring in value-added partners

# In Conclusion

- There is “...at least one point when you have to change dramatically to rise to the next performance level. Miss the moment, and you start to decline.”

-- Andy Grove

- “The evolutionary race goes to the adaptable, not to the well-adapted, to those who can learn, not those who know.”

-- Kenneth Boulding