

Growing Entrepreneurs

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Economics 101

Economics teaches that “getting good at something” is the basis of “trade” and “increased standard of living.”

Question?

What are “we” good at? Not just good, the best?

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The U.S. is the best in the world at inventing cool stuff and turning inventions into successful businesses.

Who...

Who are the people who invent cool stuff and then build successful businesses around the cool stuff?

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Answer...

Intrapreneurs and Entrepreneurs

Objectives...

If we are already the best at inventing cool stuff and then building successful businesses around the cool stuff, what should we do?

- Grow more intrapreneurs and entrepreneurs
- Make them better, faster, more productive, and more successful



Entrepreneurship — a Hot Topic in Universities for good reason

Who are “Successful Entrepreneurs?”

Quantitative analysis of entrepreneurs published in the June 24, 2018, issue of KelloggInsight, a publication of the Kellogg School of Management at Northwestern University, presented these conclusions:

- ♦ The average age of founders in the 2.7 million database covering 2007 to 2014 was 41.9 years.
- ♦ The fastest growing new tech companies were founded by entrepreneurs who were, on average, 45 years old.
- ♦ 50-year-old entrepreneurs are twice as likely to be successful as 30-year-old entrepreneurs.
- ♦ A 40-year-old is 2.1 times more likely to be successful founding a startup as a 25-year-old.
- ♦ In the fastest growing 0.1% of startups leveraging some sort of technology, the average age of the entrepreneurial founder was 45 years.
- ♦ Of the companies that had a successful liquidity event, the average age of the founder was 46.7 years.

Two Issues...

- Is being an entrepreneur “nature” or “nurture?”
- To prepare entrepreneurs, what should we teach?

Why are most successful entrepreneurs in their mid-40s rather than their 20s?

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
- Lead / Manage / Execute
- Pitch / Negotiate / Confront
- Money & Money Sense
- Entrepreneurial Mindset

Skills

Experience

Creativity

Pitch / Negotiate / Confront

Entrepreneurial Product Development Engineering

Knowledge

E-PdE

Money Sense

Entrepreneurial Mindset

Connections

Lead / Manage / Execute

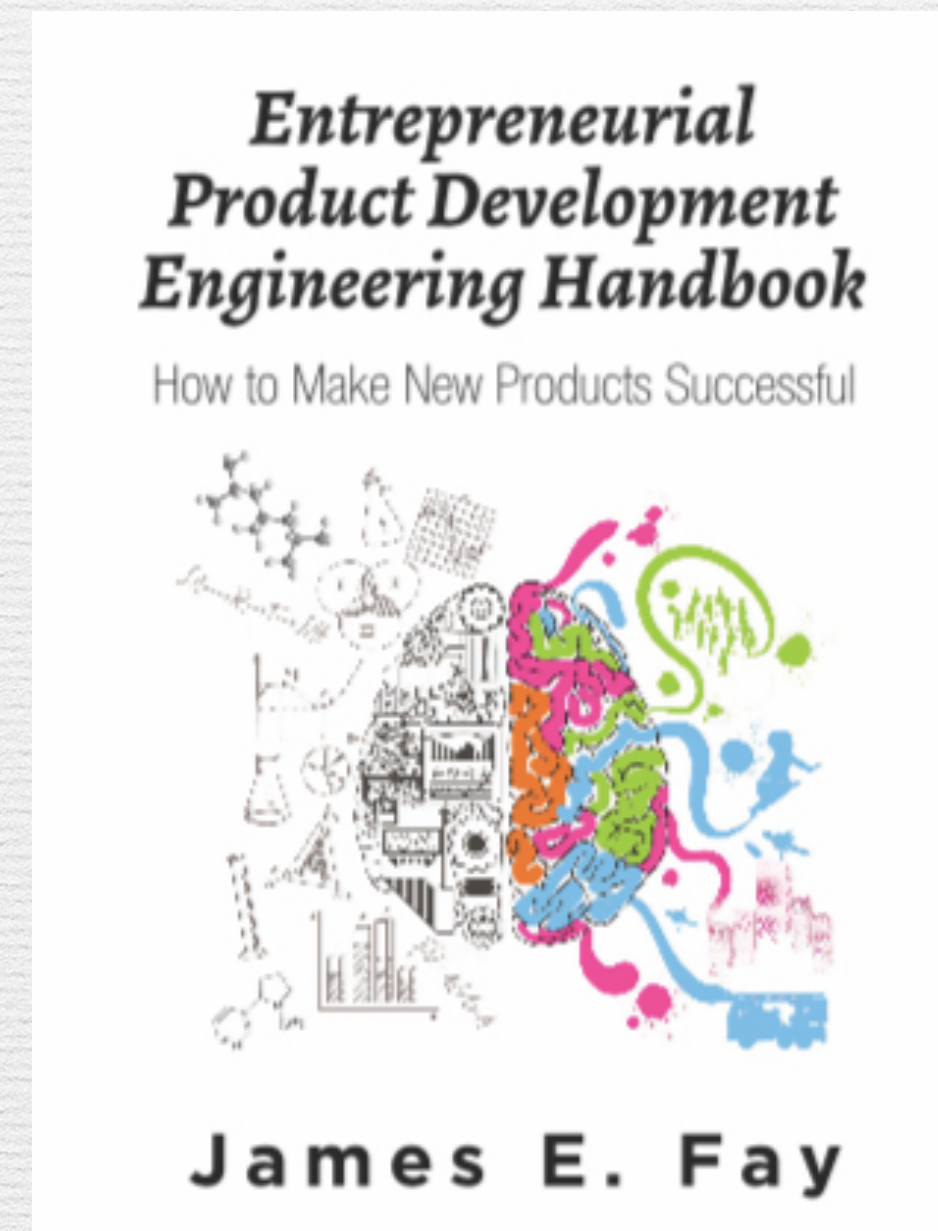
Students' anonymous evaluations of the course...

- This is the best class I have ever taken. EVER! Every student at Iowa State needs to take this class.
- This was the best class I've ever taken at ISU. The topics in this course were very beneficial and interesting. The instructor's teaching strategy was unique and super helpful.
- This class, by far, has taught me the most about becoming a successful engineer and entrepreneur. Jim's knowledge level is outstanding and his passion for giving students the opportunity to learn in and outside of the classroom is incredible. The class was very fast paced, but for good reason — there is more information to cover than there is time in the semester. No other class has changed my life in such an impactful way. I am inspired to become a better person and chase my dream of becoming a successful entrepreneur.
- Professor Fay's class has been a wonderful life changing experience. I can honestly say that it is changing the direction that I want my career to head in and I couldn't be more excited about it. Jim's lectures are the highlight of my week. I really enjoyed coming to this class everyday.

E-PdE – Activities

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
- Lead / Manage / Execute
- Pitching & Negotiating
- Money & Money Sense
- Entrepreneurial Mindset



In Class

#1 Tips & Tricks

#2 Pitches

#3 Lecture w/ Q&A

#4 In-Class Exercise or
Demonstration

EPD Club

Internships at NewConsumer
Packaged Goods Startup

Outside Class

Canvas Q&A

Projects

Walk & Talk

Meetings

Movie Night

Etiquette

Personal
Finance
Weekend

Pitch Contests

Startup Fund

E-PdE — Creative Processes

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
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Students find these
“insights” to creativity
and problem solving
hugely empowering

Just start, anywhere,
and iterate to the solution
you want

Patents have 3
requirements: Novel,
Useful, Not Obvious

Dots & Connections

Creativity is a simple matter of selecting and connecting “dots.” Then, substituting “dots” until the objective is achieved. The more “dots” you have, the better you are at selecting and connecting. The more facile you are at substituting, the more creative you are.

DOVE

Defer judgment. Outlandish ideas are necessary and welcome. Volume of ideas is best. Expand on other’s ideas.

Lens Craft

Spend time analyzing the “lens” you use to look at problems. Identify assumptions, biases, and rules to break.

Question to the Void

Continue to ask “who, what, why, when, where, how.”

Creative Problem Solving process

Potential Problem Analysis process

E-PdE — Character

Objectives

- Experience
- Skills
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Students say this is the most important thing they get from this class

1. Be Kind
2. Give Your Best Effort
3. Take Responsibility
4. Use Good Judgment
5. Earn Respect & Trust
6. Have the Courage to do what is Right
7. Integrity

E-PdE — Pitch / Negotiate / Confront

Objectives

- Experience
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This trio of abilities is transformational to students

We critique pitches in realtime. Rinse and repeat, in realtime.

The next pitch is expected to have learned from and improved on the previous pitch.



E-PdE — Specialize & Focus

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
- Lead / Manage / Execute
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- Entrepreneurial Mindset

It is painful to get students to realize that they have to dig deeper than Google for answers.

Teaching students how to do “original research” (market and technical) is a key part of the course.

Helping students identify their own and competitors’ superpowers builds confidence and is eye opening — it is the basis of understanding “competitive advantage.”



E-PdE – Generalize

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
- Lead / Manage / Execute
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- Entrepreneurial Mindset

The “real world” is much tougher than students imagine. Overlooking anything is reason to fail.

Teams are critically important in the “real world” because one person cannot know or do everything.



E-PdE — Roles

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
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No assignments. Identify, pitch, and execute team projects

Lead

See what needs to be done, and get other people to help complete projects

Experiment with different styles

Manage

See the visions of leaders, and build plans for others to execute

Learn to support teams, managers and leaders

Execute

Follow and execute, whether managed or led

E-PdE – Money

Objectives

- Experience
- Skills
- Connections
- Ideas & Creativity
- Knowledge
- Lead / Manage / Execute
- Pitching & Negotiating
- Money & Money Sense
- Entrepreneurial Mindset

How much do you need to retire?

Personal Finance

Why does a company need profit, and how much?

Profit & Loss

How is a company valued?
A startup with only an idea. A startup with a product but no sales. A startup with sales but no profit. An established company.

Valuation

In-class pitches to value ventures

E-PdE — Experience

Objectives

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Concept Development, Pitching, Market Research, Analysis, Creative Problem Solving, Marketing, Product Development, Financial Analysis, Pitching

COACH STUDENTS

Their Own New Product & New Business Ideas

NET PROMOTER SCORE
(A measure of customer satisfaction)



A student's note to ISU President Wintersteen...

“Entrepreneurial Product Development Engineering” has altered the trajectory of my entire career plan. This course was so much more than I expected.

When I signed up for this class, I thought I was checking off a tech elective. I never would have guessed that this course would change my outlook on life. Professor Fay gave me the tools to be different from other people. He gave me support and knowledge that some never get. With the skills I have acquired from this course, I believe now that not only can I create my own companies and design the world around me, but I can succeed and change the lives of people around the world for the better. I plan to make a difference in the world and be the change that I want to see.

A student's note post graduation...

“Entrepreneurial Product Development Engineering” was more than valuable to me and my future success than any class I have ever taken. I did not want this class to end. I have learned so many useful skills that are applicable in so many situations. The amount of wisdom and knowledge I learned has been infinite. I am inspired to seek different approaches when faced with challenges, build my character, and appreciate that living in the moment comes with surprises (including impromptu pitching). I never dreamed there was so much to learn about money, and how important market research is.

This class was worth every second of my time. I did not have any prior expectations going into this class, but it exceeded in every way possible. I am so much more confident than I was. I will never forget the first day I wore sweats to this class and was picked to stand in front of the room and present. That's when I decided it was time to start acting like a professional. I never wore sweats to class after the first day. Look at where I am now. I feel confident and empowered. Thank you. Genuinely, thank you.

Another student's note post graduation...

“Entrepreneurial Product Development Engineering” has been my favorite class. I have learned so much about life and about how I can succeed in my future career. Thank you. I really don't have a way to communicate the impact you have had on me. I am now more confident in myself, and I know I will be impactful with my life. I will not coast through my career without direction. I will be deliberate in the decisions I make and how they will effect me, my family, and my community. I feel that I have a renewed optimistic view on life and learning.

In conclusion...

“Entrepreneurial Product Development Engineering” is the mortar that holds together and makes sense of all the skills learned in other classes — it makes students want to learn.

“Entrepreneurial Product Development Engineering” applies to building people because people are the ultimate product.

Students are hungry for what *“Entrepreneurial Product Development Engineering”* gives them: confidence, wide ranging skills that apply to anything and everything, direction, knowledge that being a successful entrepreneur is a learned skill (nurture, not nature).

Students appreciate the “style” of *“Entrepreneurial Product Development Engineering:”* self-graded, fuzzy problems, opportunities to learn “human skills” like pitching, leading, managing, executing, creative problem solving, self-assigned projects.

Contact...

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