Facilitating Innovation and Creativity in a Team Environment

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Workshop Layout

• Welcome & Overview

• Innovation and Creativity
  – What are the key features?
  – How do we cultivate?

• Innovation and Creativity in a Team Environment
  – High performance teamwork
  – IDEO example

• Wrap-up and Next Steps
Session Objectives

• Participants will be able to describe key elements of:
  – Importance and features of high performance teamwork for fostering innovation and creativity
  – IDEO approach to innovation and creativity

• Participants will begin applying key elements to the design/re-design of a course, lab or class session or learning module
Innovation and Creativity

• Individually reflect on
  – Key features and how to cultivate innovation and creativity in a team environment
  – Record your ideas

• Turn to the person next to you
  – Exchange ideas
  – Develop a list to share with whole group

• Whole Group discussion
Guide to Increasing Innovation
Amabile & Khaire (2008)

• If you’re trying to enhance creativity:
  – Remember that you are not the sole fount of ideas
  – Enable collaboration
  – Enhance diversity
  – Map the stages of creativity and attend to their different needs
  – Accept the inevitability and utility of failure
  – Motivate with intellectual challenge
Ideas from the Innovators

Take a page from some of the world's most respected creative companies:

- BMW relocates between 200 and 300 engineers, designers, and managers to its central research and innovation center to design cars. Face-to-face teams reduce late-stage conflicts and sped development times.

Think traits as well as numbers: Tracking innovation results is crucial for any growth-focused company. But when evaluating managers, subjective metrics, such as risk tolerance or GE’s measure of “imagination and courage,” can be a better way.

Make a seat at the table: Infosys selects nine employees under 30 each year to participate in its senior management sessions. These young guns present their ideas for new services and ways to improve the company’s processes.

Preserve oral traditions: Old-timers at 3M are expected to hand down tales of the company’s long innovation tradition to new engineers. Before long, every new 3Mer can quote the philosophies of former CEO William McNight.

Get involved on the ground: Research In Motion co-CEO Mike Lazaridis personally heads engineering teams and hosts weekly innovation-themed “vision” sessions to excite the troops. A culture of innovation starts from the top.

Clear Facts for a Hazy Process

Companies frequently use overly broad methods to measure innovation success:

- Overall revenue growth: 56%
- Percentage of sales from new products or services: 50%
- Customer satisfaction: 47%
- Return on investment in innovation: 30%
- Number of new products or services: 30%
- New product success ratio: 20%
- Higher prices: 11%

The Enemies of Innovation

Ideas are easy. The toughest obstacles, said our respondents, are developing speed and coordination:

- Lengthy development times: 32%
- Lack of coordination: 28%
- Risk-averse culture: 26%
- Limited customer insight: 25%
- Poor idea selection: 21%
- Inadequate measurement tools: 21%
- Dearth of ideas: 18%
- Marketing or communication failure: 18%

Where Innovation Resources Are Going

The largest share of time and money goes to incremental innovation, respondents say:

- Type of innovation
  - Improving existing products or services: 32%
  - Creating new products or services for new customers: 29%
  - New products or services for new customers: 21%
  - Reducing product or service cost: 21%

Data: Boston Consulting Group
**A Global Pulse of Innovation**

<table>
<thead>
<tr>
<th>ASIA-PACIFIC</th>
<th>EUROPE</th>
<th>NORTH AMERICA</th>
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</thead>
<tbody>
<tr>
<td><strong>1</strong> Apple</td>
<td><strong>9</strong> GE</td>
<td><strong>1</strong> Apple</td>
</tr>
<tr>
<td><strong>2</strong> Google</td>
<td><strong>10</strong> eBay</td>
<td><strong>2</strong> Dell</td>
</tr>
<tr>
<td><strong>3</strong> 3M</td>
<td><strong>11</strong> IKEA</td>
<td><strong>3</strong> GE</td>
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<tr>
<td><strong>4</strong> Samsung</td>
<td><strong>12</strong> RyanAir</td>
<td><strong>4</strong> IBM</td>
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<tr>
<td><strong>5</strong> Microsoft</td>
<td><strong>13</strong> Sony</td>
<td><strong>5</strong> Dell</td>
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<tr>
<td><strong>6</strong> IBM</td>
<td><strong>14</strong> Intel</td>
<td><strong>6</strong> Toyota</td>
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<td><strong>7</strong> GE</td>
<td><strong>15</strong> Porsche</td>
<td><strong>7</strong> Sony</td>
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<td><strong>11</strong> Wal-Mart</td>
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<td></td>
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<td><strong>12</strong> IDEO</td>
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<td><strong>13</strong> Target</td>
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<td></td>
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<td><strong>14</strong> Samsung</td>
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<tr>
<td></td>
<td></td>
<td><strong>15</strong> Southwest</td>
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Data: Boston Consulting Group. *We broke ties by comparing 10-year annualized total shareholder returns. In ties between a public and a private company, the public company was favored.*

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**The Innovation Payoff**

These innovators have racked up steadily higher profit margins.

![Graphs showing operating margins over time](http://www.businessweek.com/magazine/content/06_17/b3981401.htm)
Jeong Kim – Director Bell Labs

• "There are people in the hedge-fund and financial sectors who have made so much money," he says. "But what have they created? What value?" The goal of the innovator, as he sees it, is to have a positive impact on your company, your country, and yourself.

• By his estimation, Bell Labs' value is in its critical mass – a lot of researchers in close proximity, sharing insights and expertise. But he also points to two earlier Bell Labs inventions: "Remember, the transistor was invented by three people, not 30,000. The laser was invented by two."

Jon Gertner, Fast Company, February, 2008
http://www.fastcompany.com/magazine/122/mad-scientist.html
Serious Play

Prototyping
Innovation
Collaboration

Prototyping is probably the single most pragmatic behavior the innovative firm can practice.

Innovation is more social than personal.

“Innovation' isn't what innovators do....it's what customers and clients adopt.”

– Michael Schrage
Design team failure is usually due to failed team dynamics (Leifer, Koseff & Lenshow, 1995).

It’s the soft stuff that’s hard, the hard stuff is easy (Doug Wilde, quoted in Leifer, 1997)

Professional Skills

Most Important Skills Employers Look For In New Hires

Which TWO of the following skills or abilities are most important to you?

- Teamwork skills: 44% Most recent grads: 38%
- Critical thinking/reasoning: 33% Most recent grads: 37%
- Oral/written communication: 30% Most recent grads: 37%
- Ability to assemble/organize information: 21% Most recent grads: 10%
- Innovative/thinking creatively: 20% Most recent grads: 21%
- Able to work with numbers/statistics: 9% Most recent grads: 4%
- Foreign language proficiency: 3% Most recent grads: 6%

*Skills/abilities recent graduates think are the two most important to employers
Top Three Main Engineering Work Activities

**Engineering Total**
- Design – 36%
- Computer applications – 31%
- Management – 29%

**Civil/Architectural**
- Management – 45%
- Design – 39%
- Computer applications – 20%

Teamwork

<table>
<thead>
<tr>
<th>Type of Group</th>
<th>Performance Level</th>
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<tbody>
<tr>
<td>Pseudo-group</td>
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<tr>
<td>Individual Members</td>
<td></td>
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<tr>
<td>Cooperative Group</td>
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<tr>
<td>High-performing Cooperative Group</td>
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Characteristics of Effective Teams

• ?
A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable.

- SMALL NUMBER
- COMPLEMENTARY SKILLS
- COMMON PURPOSE & PERFORMANCE GOALS
- COMMON APPROACH
- MUTUAL ACCOUNTABILITY

--Katzenbach & Smith (1993) *The Wisdom of Teams*
Hackman – Leading Teams

- Real Team
- Compelling Direction
- Enabling Structure
- Supportive Organizational Context
- Available Expert Coaching

Team Diagnostic Survey (TDS)

https://research.wjh.harvard.edu/TDS/
Real Team

- clear boundaries
- team members are interdependent for some common purpose, producing a potentially assessable outcome for which members bear collective responsibility
- at least moderate stability of membership
# Cooperative Learning

## Positive Interdependence

<table>
<thead>
<tr>
<th>Goal Interdependence (essential)</th>
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<tbody>
<tr>
<td>1. All members show mastery</td>
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<tr>
<td>2. All members improve</td>
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<tr>
<td>3. Add group member scores to get an overall group score</td>
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<tr>
<td>4. One product from group that all helped with and can explain</td>
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<table>
<thead>
<tr>
<th>Role (Duty) Interdependence</th>
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<tbody>
<tr>
<td>Assign each member a role and rotate them</td>
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<thead>
<tr>
<th>Resource Interdependence</th>
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<tbody>
<tr>
<td>1. Limit resources (one set of materials)</td>
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<tr>
<td>2. Jigsaw materials</td>
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<tr>
<td>3. Separate contributions</td>
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<table>
<thead>
<tr>
<th>Task Interdependence</th>
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</thead>
<tbody>
<tr>
<td>1. Factory-line</td>
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<tr>
<td>2. Chain Reaction</td>
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<table>
<thead>
<tr>
<th>Outside Challenge Interdependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intergroup competition</td>
</tr>
<tr>
<td>2. Other class competition</td>
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</table>

<table>
<thead>
<tr>
<th>Identity Interdependence</th>
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</thead>
<tbody>
<tr>
<td>Mutual identity (name, motto, etc.)</td>
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<table>
<thead>
<tr>
<th>Environmental Interdependence</th>
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</thead>
<tbody>
<tr>
<td>1. Designated classroom space</td>
</tr>
<tr>
<td>2. Group has special meeting place</td>
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<th>Fantasy Interdependence</th>
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<tr>
<td>Hypothetical interdependence in situation (&quot;You are a scientific/literary prize team, lost on the moon, etc.&quot;)</td>
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<thead>
<tr>
<th>Reward/Celebration Interdependence</th>
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<tbody>
<tr>
<td>1. Celebrate joint success</td>
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<td>2. Bonus points (use with care)</td>
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<tr>
<td>3. Single group grade (when fair to all)</td>
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</tbody>
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## Individual Accountability

**Ways to ensure no slackers:**
- Keep group size small (2-4)
- Assign roles
- Randomly ask one member of the group to explain the learning
- Have students do work before group meets
- Have students use their group learning to do an individual task afterward
- Everyone signs: “I participated, I agree, and I can explain”
- Observe & record individual contributions

**Ways to ensure that all members learn:**
- Practice tests
- Edit each other's work and sign agreement
- Randomly check one paper from each group
- Give individual tests
- Assign the role of checker who has each group member explain out loud
- Simultaneous explaining: each student explains their learning to a new partner

## Face-to-Face Interaction

**Structure:**
- Time for groups to meet
- Group members close together
- Small group size of two or three
- Frequent oral rehearsal
- Strong positive interdependence
- Commitment to each other's learning
- Positive social skill use
- Celebrations for encouragement, effort, help, and success!

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Teamwork Skills

- Communication
- Listening and Persuading
- Decision Making
- Conflict Management
- Leadership
- Trust and Loyalty
Group Processing
Plus/Delta Format

Plus (+)  
Things That Group Did Well

Delta (Δ)  
Things Group Could Improve
Team Charter

• Team name, membership, and roles
• Team Mission Statement
• Anticipated results (goals)
• Specific tactical objectives
• Ground rules/Guiding principles for team participation
• Shared expectations/aspirations
Code of Cooperation

• EVERY member is responsible for the team’s progress and success.
• Attend all team meetings and be on time.
• Come prepared.
• Carry out assignments on schedule.
• Listen to and show respect for the contributions of other members; be an active listener.
• CONSTRUCTIVELY criticize ideas, not persons.
• Resolve conflicts constructively,
• Pay attention, avoid disruptive behavior.
• Avoid disruptive side conversations.
• Only one person speaks at a time.
• Everyone participates, no one dominates.
• Be succinct, avoid long anecdotes and examples.
• No rank in the room.
• Respect those not present.
• Ask questions when you do not understand.
• Attend to your personal comfort needs at any time but minimize team disruption.
• HAVE FUN!!
•?

Adapted from Boeing Aircraft Group Team Member Training Manual
01 Our vision

“We believe great innovators and leaders need to be great design thinkers.”

A bold new design institute at Stanford

We have a dream about building a place for design at Stanford.

We want to build a place where design thinking is the glue that binds people together, a place we call the d.school.

We want the d.school to be a place for Stanford students and faculty in engineering, medicine, business, the humanities, and education to learn design thinking and work together to solve big problems in a human centered way.

We want it to be a place where people from big companies, start-ups, schools, nonprofits, government, and anyone else who realizes the power of design thinking, can join our multidisciplinary teaching, prototyping, and research.

http://www.stanford.edu/group/dschool/big_picture/our_vision.html
Ideo’s five-point model for strategizing by design:
Hit the Streets
Recruit T-Shaped People
Build to Think
The Prototype Tells a Story
Design Is Never Done

Tom Friedman
Horizontalize Ourselves

Design Thinking

Discipline Thinking

AAC&U College Learning
For the New Global Century
The Innovation Journey

The innovation journey is a nonlinear cycle of divergent and convergent activities that may repeat over time and at different organizational levels if resources are obtained to renew the cycle, p. 16.
IDEO – Deep Dive Video

ABC News
Nightline - 7/13/99

Available From
ABC News Store
www.abcnews.com


IDEO - “The Deep Dive”

IDEO has been identified as America’s Leading Design Firm.

IDEO’s special ingredients:
- Teams
- Culture
- Methodology
IDEO - “The Deep Dive”

- Viewing Perspectives:
  - Teams
  - Culture
  - Methodology
  - Videographer
“THE DEEP DIVE”
Five Days at
Components of IDEO process

- Creation of “Hot Teams”
- Brainstorming
- Rapid Prototyping
- Observing & Listening from Customers
- Thinking of products in terms of *verbs*, rather than *nouns*
IDEO’s Teams

- Named “Hot Teams.”
- Multidisciplinary.
- Group leader is assigned based on their abilities to work with groups.
Seven Secrets for Better Brainstorming

1. Sharpen the focus
2. Playful rules
3. Number your ideas
4. Build and jump
5. The space remembers
6. Stretch your mental muscles
7. Get physical
Playful Rules

- One conversation at a time
- Stay focused on the task
- Encourage wild ideas
- Go for quantity
- Be visual
- Defer judgment
- Build on the ideas of others
IDEO’s Culture

- Employees design their own working areas.
- Employees have interest and skills to work with a wide range of people.
- No hierarchies.
Build Your Greenhouse

- Building Neighborhoods
- Think Project, Think Personal
- Building Blocks
- Inspiration from Adversity
- Prototype Your space
- Create a Team Icon

- Watch Your Body Language
- Simple Team Space
- Hierarchy is the Enemy of Team Space
- Give Your Workers a View
- Tell Stories
- Make Your Junk Sing
Build Your Greenhouse

Building Neighborhoods

- Areas of Congregation
  - Lounge / Common Area

- Mainstreet
  - Forced Interaction

- Need for Privacy
  - Quiet Areas
  - Individuality
Five steps to IDEO’s innovation

- Understand the market/client/technology/constraints
- Observe real people in real situations
- Visualize new-to-the-world concepts & ultimate customers
- Evaluate & refine prototypes
- Implement new concept for commercialization
IDEO's Method

Observation

Brainstorming

Prototyping

Implementation

- user desirability
- business viability
- technical feasibility

insights and opportunities

implementation

www.ideo.com
Ideo Brainstorming

- One Conversation at a time
- Quantity is key
- Use Visual Aids early
- Aggregation of Ideas

1. Duration: Limit Time to an Hour
2. Don’ts: No Presentations, Nor a time to poll employees, and not about swanky retreats.

* www.ideo.com
http://www.1000ventures.com/business_guide/cs_product-design_ideo.html
How to Kill Brainstorming

- The boss speaks first.
- Everybody gets a turn
- Experts Only – diversity trumps expertise
  - Kelley’s Rule: 1 person who can build things, 1 with customer experience, and a sci-fi nerd.
- Off Site
- No Silly Stuff
- Document Everything

http://www.qualityoflife.org/ich/IDEO/IDEO.cfm
IDEO’s Innovation Methodology

Source: http://www.mediawerk.ch/nerve/category/visual-literacy/
IDEO helps companies innovate. We design products, services, environments, and digital experiences.

“Head in the sky...” IDEO’s teams, culture, and methodology are the special ingredients that fuel our approach to innovation and design. We begin with a deep exploration of business, human, and technical factors. Observe. Brainstorm. Prototype. Repeat.

Point of View. Essence. Heart. “...ness.” Whatever you call it, it’s there: a shared mind set, the place where the efforts of our problem-solving engine converge. Expressed in a visible and tangible way, it informs and inspires the design process.

“...feet on the ground.” What’s a good idea worth if it can’t be realized? IDEO’s world-class designers and engineers ensure that the power of the vision is preserved in the journey from concept to final production.
Innovation Resources

Additional Perspectives on Innovation:


Innovation Resources