The Human-Human Interaction Behind HCI:
Team Creativity

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Creativity

- The production of novel (and useful) ideas; ideation

Innovation

- The realization of new products and/ or services as a result of new ideas; also known as idea implementation

THE WORLD'S 50 MOST INNOVATIVE COMPANIES

Welcome to our annual guide to the businesses that matter most, the ones whose innovations are having an impact across their industries and our culture. Click a company name to view the entry, or determine your own ranking of the top four companies using a series of quizzes, games, and brainteasers.

1 Apple
For walking the talk

2 Facebook
For 800 million reasons to share

3 Google
For expanding its hit lineup

4 Amazon
For playing the long game

5 Square
For making magic out of the mercantile

6 Twitter
For amplifying the global dialogue

7 Occupy Movement
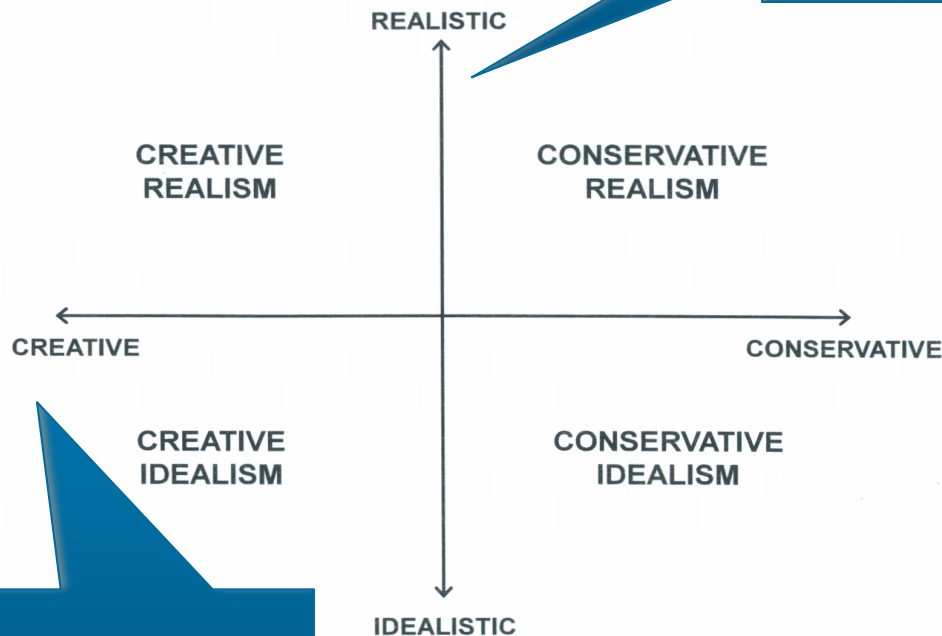For embodying all the traits that make a Fast Company

8 Tencent
For fueling China's Internet boom--and boldly moving West

9 Life Technologies
For speeding up genetic sequencing

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Four General Conceptual Domains into which New Ideas Can Be Classified

Dimension 2:
Structural Connectedness – fit with current products & services

REALISTIC

| CREATIVE REALISM | CONSERVATIVE REALISM |

CREATIVE

CONSERVATIVE

| CREATIVE IDEALISM | CONSERVATIVE IDEALISM |

IDEALISTIC

Dimension 1: Creativity – novel or traditional

Finke, 1995

Team Brainstorming

- The evidence: **Teams aren't good at brainstorming.**

- *Don't we often use them for this very purpose!*

- **Exercise**: Food for Thought

Exercise: Food for Thought

- Team Brainstorming Task

- Goal is to come up with as many category labels as possible

- Sit with your project teams; Don't start until instructed to do so

- All ideas need to be recorded on the handout

- *Ideate* for 10 minutes

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Food-for-Thought: Results

Team	Members	Fluency	Flexibility	Originality

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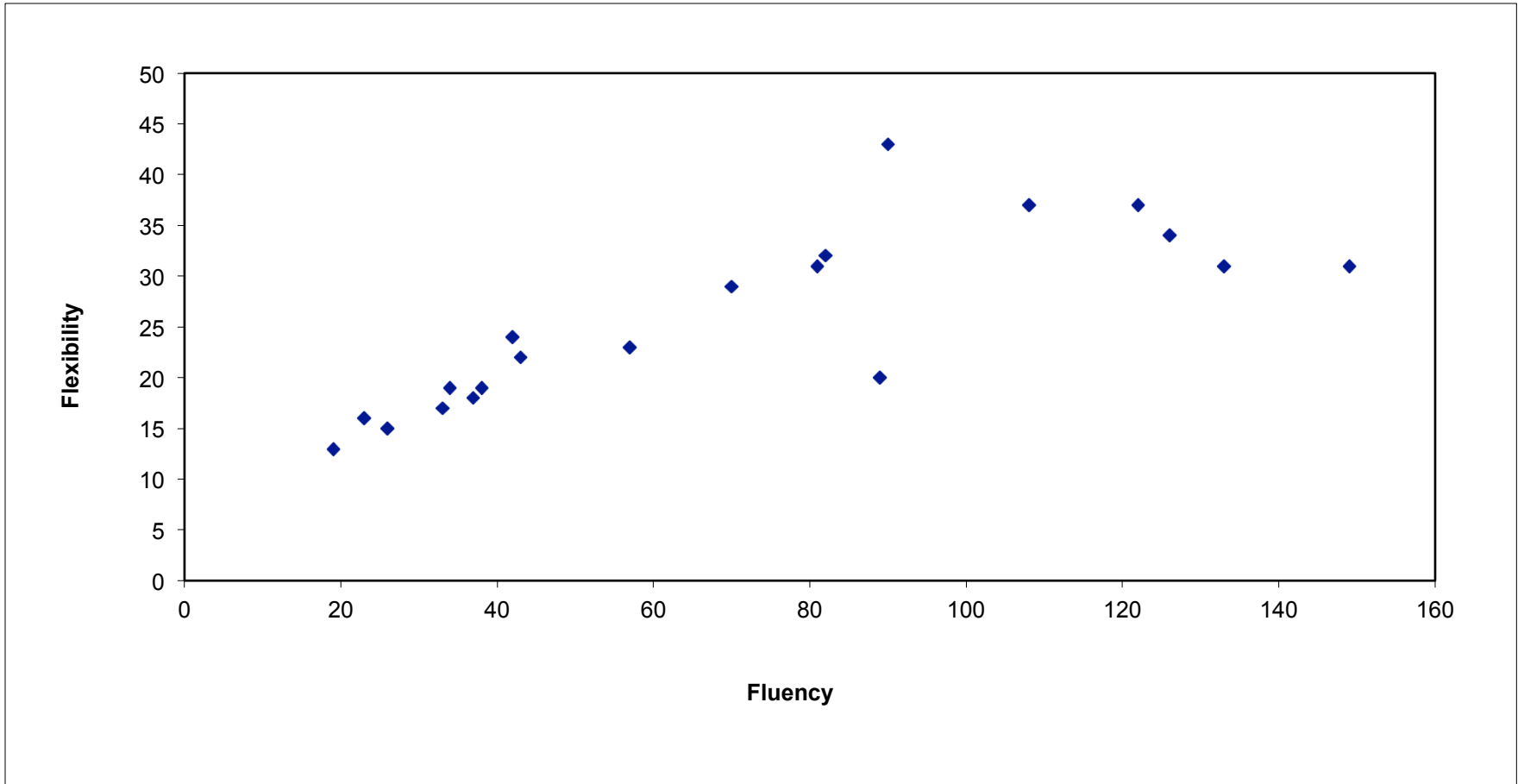
Quantifying Creativity

Fluency → Flexibility → Originality

Counterintuitive: ***Quantity ultimately leads to originality***

Flexibility is key

How do we promote flexible thinking in teams?

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Relationship between Fluency & Flexibility

Teams are not *Normally* Creative

	Face-to-Face Team Brainstorming	Nominal Team Brainstorming (Same Number of People Working Independently)
Quantity: Number of Ideas Generated	28	75
Quality: Percentage of "good ideas" as judged by independent experts who did not know whose ideas they were evaluating	9%	13%

Diehl & Stroebe, 1987

Convergent & Divergent Thinking

- C: proceeds toward a single answer
- D: proceeds outward from the problem in many directions
- Teams excel at convergent thinking (conformity, agreement) ….but they benefit from divergent thinking, followed by convergent thinking

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Teams Need Process Interventions

- ***The solution***: Teams must manage the process to "norm" divergent thinking first

- ***Case in Point:*** IDEO

Online discussion and
Web address information given
during this program may no
longer be accurate.

ABC has left these references
intact to preserve the
integrity of this program.

Four Horseman of the *Creative* Apocalypse

- ***Social loafing*** – tendency for people to work less hard in a group as compared to working alone

- ***Conformity*** – desire to be liked and accepted inhibits free expression of ideas

- ***Production blocking*** – members cannot express ideas because others are talking

- ***Performance matching*** – team members converge in their performance levels over time, this can lead to downward norm setting

Thompson, 2008

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Face-to-Face Teams need to "Act Like Virtual Teams"

Virtual Teams Gain More Value from Information Exchange when they focus on *Convergent* Views

F2F Teams Gain More Value from Information Exchange when they focus on *Divergent* Views
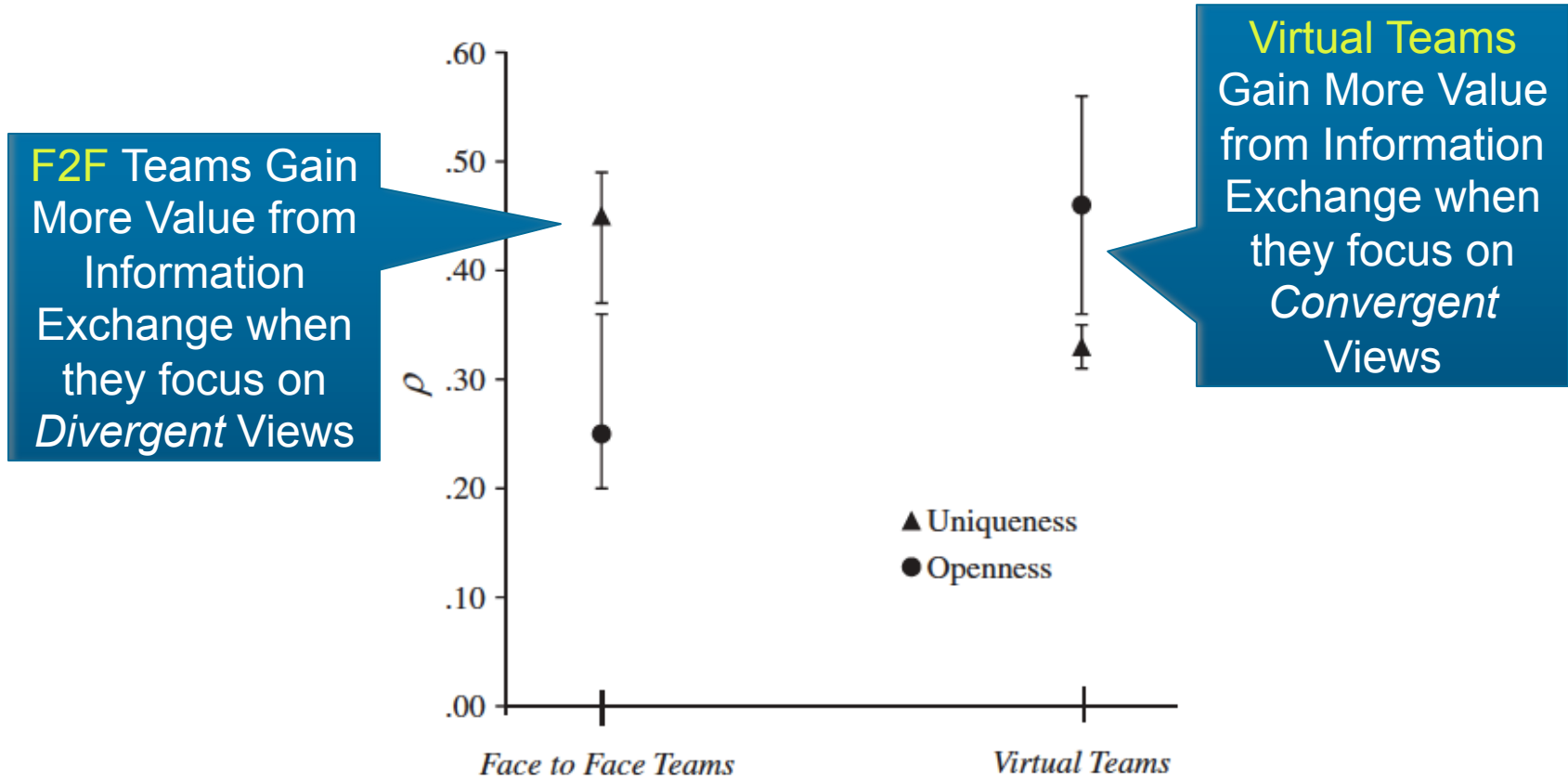
▲ Uniqueness
● Openness

Face to Face Teams

Virtual Teams

Fig. 1. Relationship between information sharing and team performance by type of information sharing and virtuality of team.

Mesmer-Magnus, DeChurch et al., 2011

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Evidence-Based Interventions

Process Interventions – *How you interact while brainstorming*	Organizational Interventions – *How you control how you interact while brainstorming*	Structural Interventions– *Creative inputs; the people, their social environment, the team's environment*
•Set high quantity goals •Explicit set of rules •Paulus's new rules •Positive mood •Increase individual accountability •Analogical reasoning	•Trained facilitators •Brainwriting •Brief breaks •Nominal group technique •Delphi technique •Stepladder technique	•Diversify the team •Fluid membership •Organizational networking •Traverse industries •Build a creative space and environment

Thompson, 2008

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Rules for Brainstorming

1. **Expressiveness:** Express any idea that comes to mind, no matter how weird, strange, or fanciful. Do not be constrained or timid.

2. **Nonevaluation:** Do not criticize ideas. Do not evaluate any of the ideas during the generation phase.

3. **Quantity:** Generate as many ideas as possible. Strive for quantity! Quantity increases the probability of finding novelty.

4. **Building:** Modify and extend the ideas suggested by others whenever possible.

Osborn, 1957

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Paulus's New Rules

1. **Stay focused on the task**

2. **Do not tell stories or explain ideas**

3. **When no one is suggesting ideas, restate the problem and encourage each other to generate ideas**

4. **Encourage those who are not talking to make a contribution**

Use of these rules can increase idea generation by 40%

Oxley, Dzindolet, & Paulus, 1996

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For replicable creativity in teams… structure the process

	Failure Outcome	**Successful Outcome**
Flawed Process	Predictable Failure	"Lucky" Nonreplicable success
Vigilant Process	"Unlucky"	Predictable success — Best condition for replicable success

Thompson, 2008

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