

Divergent Thinking Workshop

TH!NK Faculty Workshop
Spring 2015

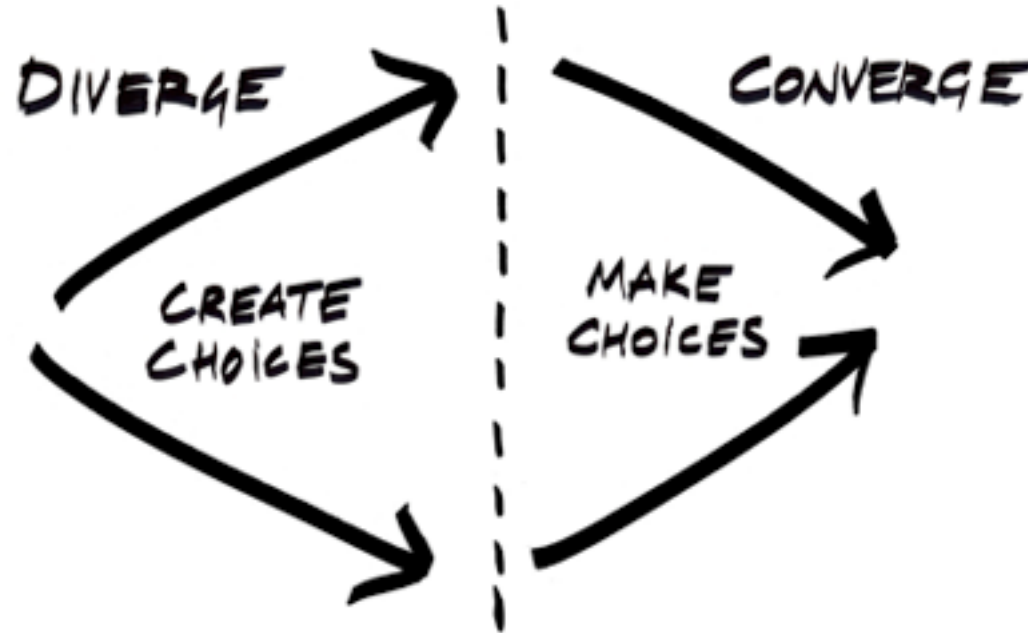
Sara Queen, Assistant Professor College of Design

Divergent Thinking + Convergent Thinking + Taking Risk in the Classroom Workshop

TH!NK Faculty Workshop
Spring 2015

Sara Queen, Assistant Professor College of Design

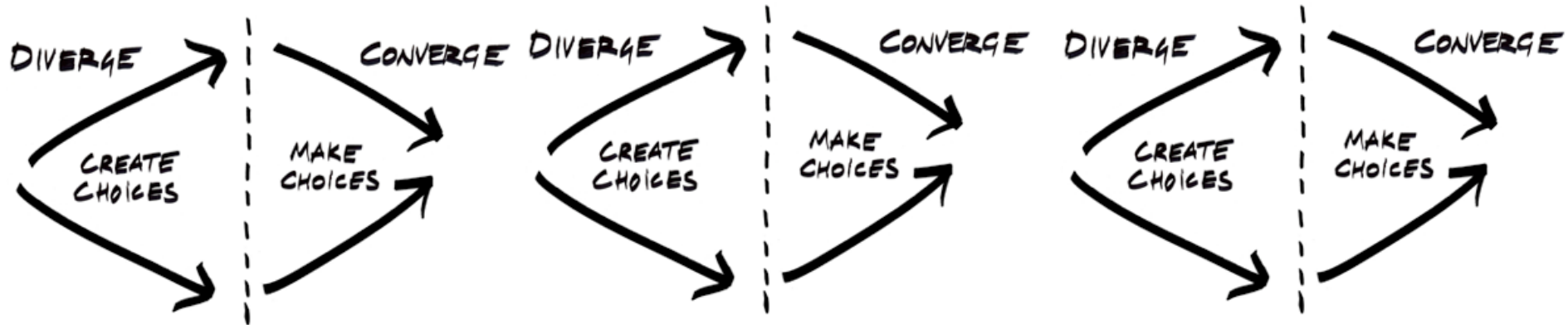
Convergent vs. Divergent Thinking



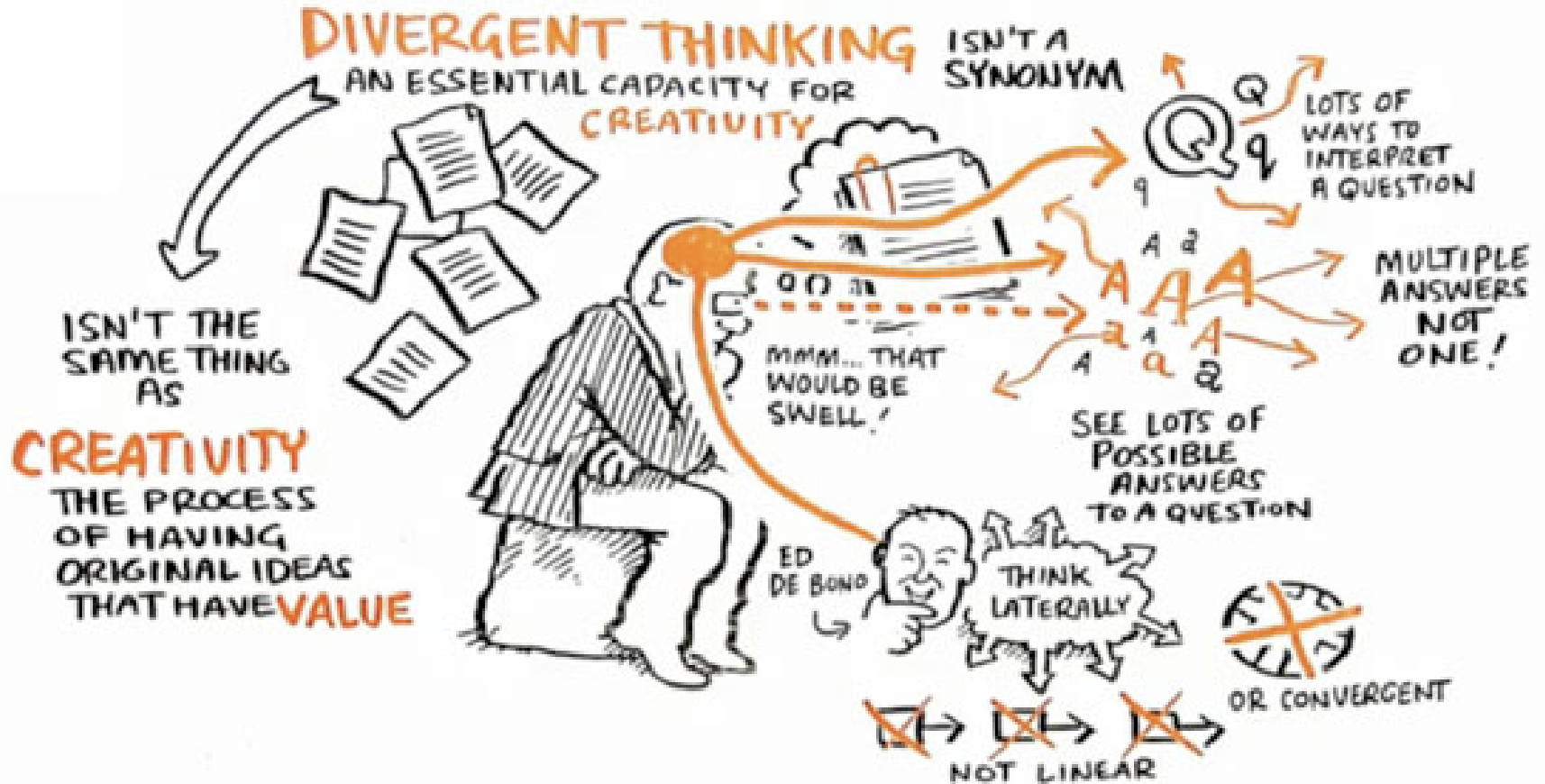
Divergent Thinking
Imagination
Generating New Possibilities

Convergent Thinking
Judgement
Decisions
Testing and evaluating

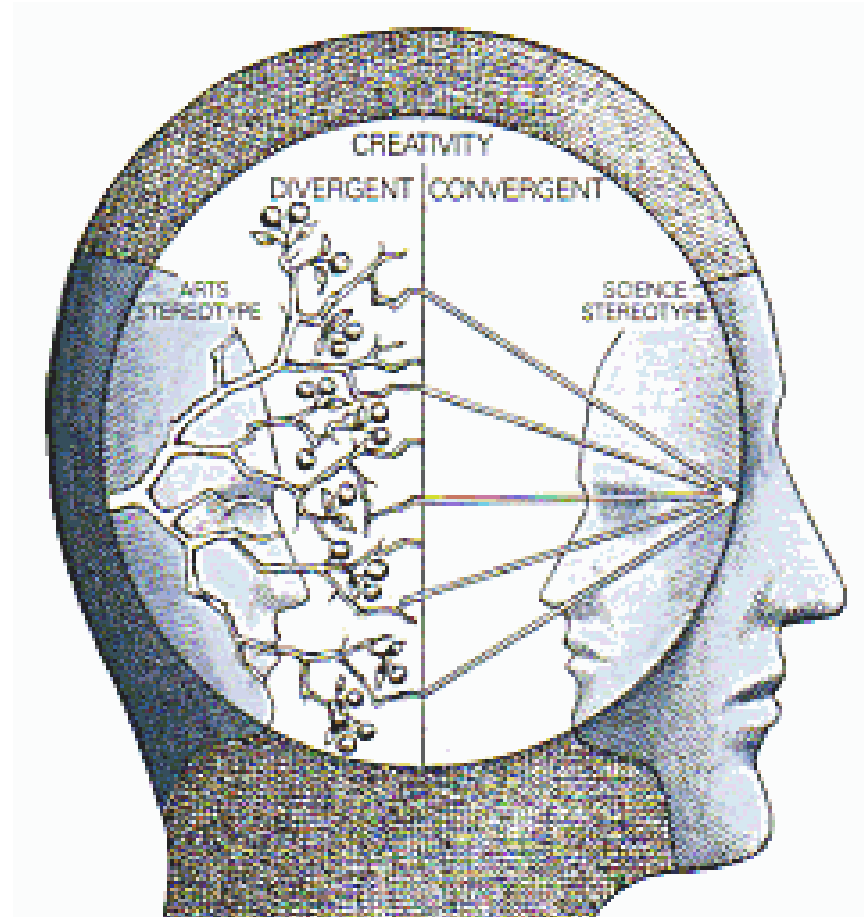
Convergent + Divergent Thinking Process



Divergent Thinking + Creativity



Divergent Thinking + Disciplinary Methods



Emphasis on Convergent Thinking



Valid reasons why divergent thinking is often discouraged in classrooms:

- **Divergent thinking treats all ideas equally**
- **Divergent thinking is often hard to measure**
- Divergent behavior in larger classrooms might cause **disruption.**

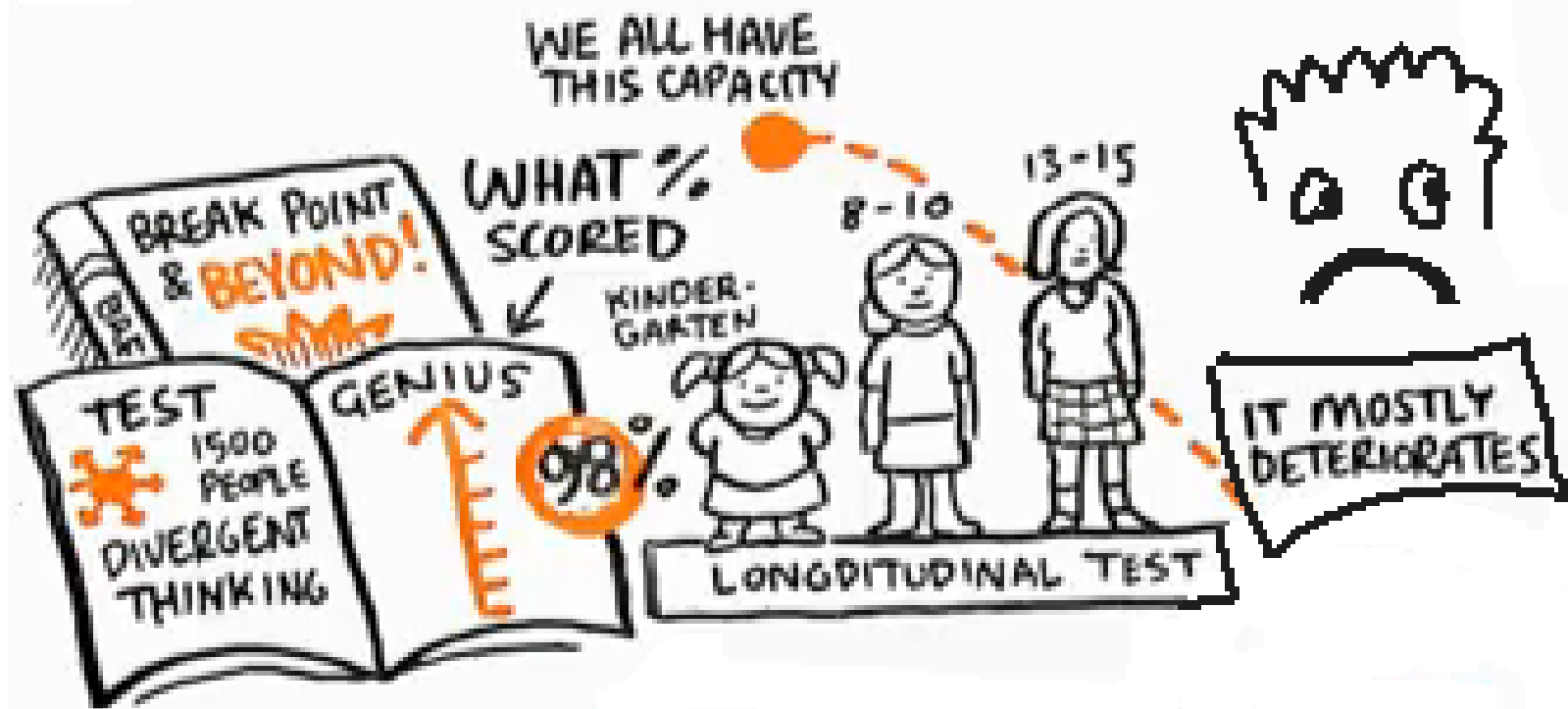
Emphasis on Convergent Thinking: Unintended Consequences

“All children are artists. The problem is how to remain an artist once he grows up.”
Pablo Picasso

We are currently “educating people out of their creativity capacities” by making mistakes the worst thing a student can do.

Sir Ken Robinson, TED Talk “How Schools Kill Creativity”

Creativity Research: George Land



- At 5 years old 98% scored in the “Creative Genius Category”
- Adults only scored 2% in the “Creative Genius Category”.

Land concluded that **non-creative behavior is learned** early on.

How do we encourage BOTH?

Integrating Divergent and Convergent Thinking:

Separate and give space to each type of thinking

Encourage play & manage failure

Encourage a diversity of perspectives

Acknowledge multiple intelligences

Divergent Thinking Activities

Asking Questions

Problem-based learning

Open-ended Questions

Topic Analysis

How would you describe _____?

What are the causes/effects of _____?

What is important about _____?

How has _____ changed? Why are those changes important?

What is known and unknown about _____?

Guided Peer Questioning

What are the implications of _____?

Why is _____ important?

What is another way to look at _____?

Inquiry-based Feedback

I noticed that _____ why? and how?

Divergent Thinking Activities

Brainstorming + Ideation

Generating Alternatives (1)

- Change your media
- Change constraints or criteria of the challenge or issue at hand
- Work in unknowns, take RISKS
- Build-in Translation and Abstraction

Keeping a Journal

Freewriting

Mind or Concept Mapping

(1) Keith Sawyer, Zig Zag

Integrate Divergent Thinking

In disciplinary similar or allied groups brainstorm on the following:

- How is Divergent Thinking used in your discipline?
- Do you use Divergent Thinking strategies in your course now?
- What are the barriers to incorporating Divergent Thinking in your course?
- Are there short term, low-stakes exercises which you can scaffold throughout your course to encourage Divergent Thinking Behaviors? (inside or outside of class time)

Risk Taking

“The term “Risk Society” has been coined to describe a culture that is **oriented towards the future and dealing with uncertainty** and insecurity. **Risk is integral to innovation and to advanced, complex societies.** Major advances are dependent on experimentation-- a process that involved trying out and mixing new ideas, methods, and techniques.” (1)

“The future face of enterprise will be defined by those who are willing to take risks, experiment vigorously, and continue in the face of failure” (2)

1. Rolfe, Heather. *NESTA Learning to Take Risks, Learning to Succeed*. NIESR p. 7
2. Kulveer Taggar, founder of Auctomatic- a tool for managing EBay trading.

Risk Taking

Entrepreneurs and Innovators generally have a higher **tolerance for risk**. They are more likely to perceive:

- Strengths rather than weaknesses
- Opportunities versus threats
- Potential for performance improvement versus deterioration

How we Discourage Risk Taking

Barriers to risk taking in the classroom (+ life) are:

- Perception of loss vs. gain.
- Frequent progress checks.
- Desire for predictable outcomes and objectives.
- Fear of failure.
- Lack of ownership over decisions.
- Lack of time.

Anticipate, Take, and Manage Risks

Risk taking is a cognitive process and can be learned and refined with practice.

- “Learn to anticipate, take and manage risk” as an learning objective
- Understand / Predict reward or consequence (in both negative and positive terms)
 - Learn from and value failure through metacognitive reflections
 - Encourage informed discussions by acting on reasonable risk/reward assessment

Palick L and Bagby R (1995) Using Cognitive Theory to explain entrepreneurial risk taking: Challenging Conventional Wisdom. "Journal of Business Venturing" 10 (6) pp425-438.

Facilitating Risk in the Classroom

Strategies to facilitate risk taking in the classroom:

- Instructors and TAs should have clear **distinct roles in projects**, allowing students to take ownership of their decisions
- Give students the **freedom to design or define** aspects of their assignment/project.
- Foster an environment that **supports independent thinking**.
- **Ask questions that are open ended** and do not advocate solutions.
- Factor into the project **reflection** exercises which students to report on their experiences and lessons learned.
- Engage students in exploring the course content with **applied “real world” issues** (include “external- champions” where possible)
- Discuss **case studies / precedents of risk takers** within the discipline whose risks transformed the field.

Fail early and Fail Often

Experiencing risk inevitably involves experiencing failure.

- Risk in the “safe” environment of the classroom
- Distributed risk taking encourages students to not put all of your eggs in one basket but explore a number of possible and appropriate options.
- Risk taking skills have been shown to improve confidence and resiliency to setbacks.

Risk Taking in your classroom

Most of our disciplines are built on processes and methods which incorporate risk taking because they involve stages of decision making, experimentation, testing, observation and adaptation. However there is evidence that teaching in the classroom often fails to include risk taking by giving prominence to knowledge and understanding rather than enquiry.

Break into small groups and explore:

- How you can incorporate risk taking in your classroom?
- What are the barriers to incorporating risk into your classroom?