

Collaborative Mesh Networking

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Week 11

Final Project

- Discuss final project ideas
 - groups
 - collaborative element

Warmup

- Simulclap

Group Genius



Before We Begin

- Think about and write down:
 - a time when you had a flash of insight
 - a group you were in that was very creative
 - a group you were in that wasn't very creative
 - a time when you became happily lost in a task

Group Genius & Creativity

- Genius: “Extraordinary intellectual and creative power”
- Creativity: “The power or ability to invent”
- Group: “An assemblage of persons or objects gathered or located together”



Three Creative Teams

Wright Brothers

- Lone geniuses?
 - worked together
 - massive iteration
 - massive experimentation
 - rigorous processes
- Not flashes of insight
 - strings of ideas, progressions



Improvisational Theater

- Model system for collaboration
- Interactional Dynamics Studies
 - 1 hour per minute of video
- Results
 - creative build
 - ideas sparking ideas



Mountain Bikes: Group Invention

- Invisible collaboration
 - multiple independent inventions: brakes, shifters, frame modifications



- ideas sparking other ideas via an object

Characteristics of Creative Teams

- 1. Emergence over Time
 - mythical flash of insight
 - progression of concepts
- 2. Deep Listening
 - listening to others with good attention
 - not simply planning your next statement
 - interplay between self and others
- 3. Building on Collaborators
 - embrace and extend
 - one person's finished product is another's raw material

Characteristics of Creative Teams

- 4. Ideas Reach Importance Later
 - a butterfly flapping its wings
 - forks and constraints
 - mishearing
- 5. Finding New Questions
 - rather than solving old ones
 - problem-generation
- 6. Innovation is Inefficient
 - more misses than hits
 - ...but the hits can be home runs
 - messy, time consuming, indirect

Characteristics of Creative Teams

- 7. Self-organization
 - bottom-up vs. self directed
 - self-organization must be allowed to happen
 - details first
 - ideas created that no single person could have generated alone

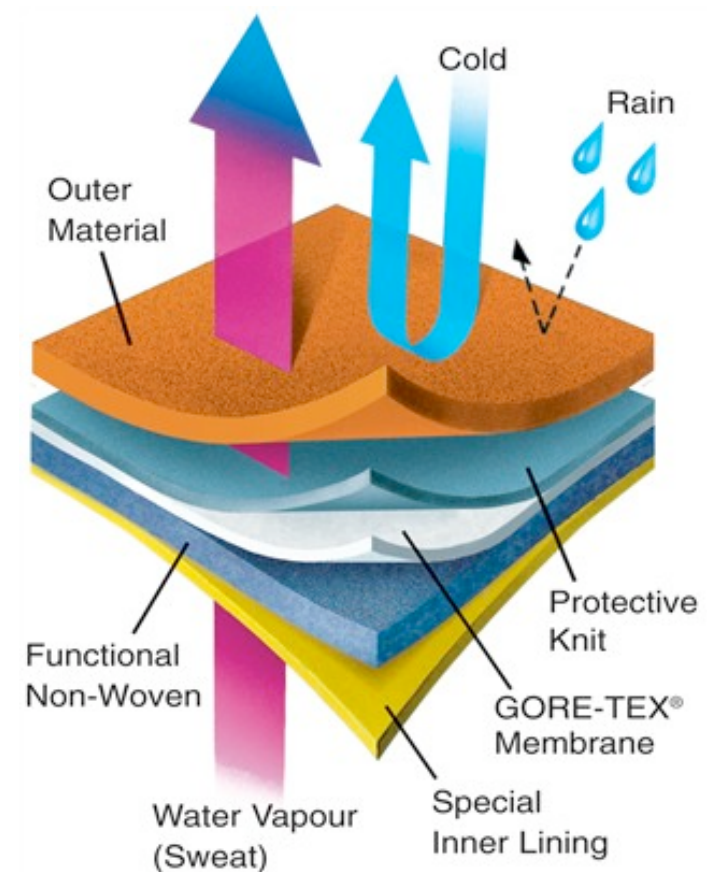
- Remember, these are Sawyer's characteristics. What else fosters creativity?

More Examples

Gore: *Culture of Innovation*

(Gore-Tex fabric)

- small task forces
- constant reorganization
- no clear-cut roles
- allocations for speculative new ideas
- bottom-up
- winning concepts gain support
- Sound like any place you know?



Naples: *Emergent Systems*

- Naples Earthquake 1980
- volunteers self-organized efficiently
- Army (initially) less effective
- adaptation to existing particulars
key to response
- planning vs. improvisation
 - but improv can be a disaster.
why?



Honda Motorcycles: *Script Think*

- Also known as hindsight bias. (conspiracy theories run on this)
- Honda vs. Harley
 - 1975 Boston Consulting Group: great business plan
 - Reality: Honda tried to compete
 - and failed: tech problems and inappropriate engineering
 - Small bikes in L.A. were a hit so Honda reluctantly sold them
 - 50% market share in 4 years

Balancing Planning and Improv

- Increased planning = slower project development, higher costs
- Improvisation = profits
- Planning is best in short bursts
- Sawyer's DUPLO exercise
 - best games are played earliest
 - least creative games come from all planning and no play



Donnez-lui
plein d'idées
à construire

De la Tour Eiffel à la girafe, en passant par le bureau de papa, il n'y a qu'un pas. Ce bambin plein d'imagination peut constamment réaliser des créations totalement personnelles et originales. L'expérience se renouvelle chaque fois qu'il plonge dans le baril DUPLO®. Il y puise une mine de trésors pour construire un monde à sa fantaisie.

DUPLO® : l'imagination grandissante

duplo LEGO

Leadership

- Traditionally divide task, keep schedules and coordinate
- Collaborative leadership:
 - establish creative space
 - act as a peer
 - sanction risks
 - protect from over-planning
 - make decisions
 - facilitate emergence



Flow States

- Being in the moment, with competence, full control, loss of self-consciousness and loss of time.
 - Defined by: Mihaly Csikszentmihalyi ("ME-high CHICK-sent-me-high-ee")
- To get there:
 - skills must match task
 - clear goal
 - constant feedback on progress
 - full concentration



Group Flow

- Conversation is the most common place to experience flow
- merging action and awareness
- acting without planning
- happy meetings
- How can we make it happen?



Facilitating Group Flow

- 1. Common Goal
 - problem-solving or problem-finding
- 2. Close Listening
 - less response planning
 - genuine responses to what is heard
- 3. Complete Concentration
 - time warp
 - moderate to low pressure
- 4. Being In Control
 - autonomy
 - competence
 - control, but not controlling

Facilitating Group Flow

- 5. Ego Control
 - self melded with group
 - mutual respect
- 6. Equal Participation
 - comparable skill levels
 - no domination or arrogance
- 7. Familiarity
 - increases productivity
 - tacit knowledge of each other
 - ...but not too much
 - problem-finding needs diversity
 - problem-solving needs familiarity

Facilitating Group Flow

- 8. Communication
 - constant
 - spontaneous
- 9. Moving Forward
 - keep building on prior ideas
 - avoid getting bogged down
- 10. Potential for Failure
 - allow room for risk
 - no creativity without failures
 - new ideas need to be tried out

Group Think

- Groups can be stupid
- 20 years of studies show that traditional brainstorming is ineffective:
 - production blocking
 - social inhibition
 - social loafing
- Why does it feel good?
 - Groups are fun
 - everyone wants to get along
 - avoiding conflict

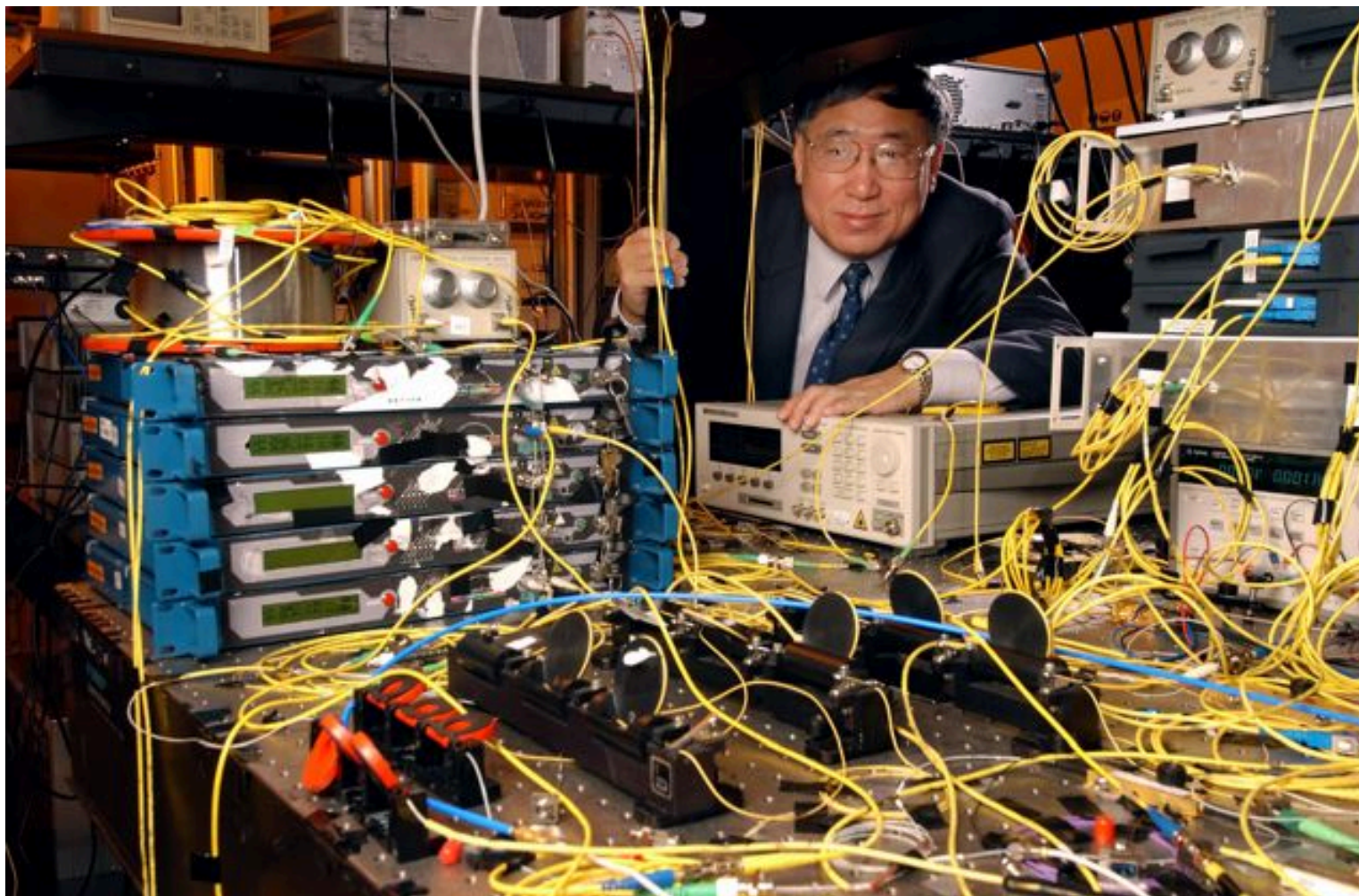


Improvised Collaboration Still Great

- Ideation is additive, task-based work
- Creativity is exponential and thrives on interaction effects
- To create new things you must have original inputs
 - museums, discussions, concerts, travel all broaden the mind
- Communication breeds understanding, it's why we present so much
- Groups are good at:
 - Idea evaluation
 - problem solving
 - problem generation



Okay, So What About Devices?



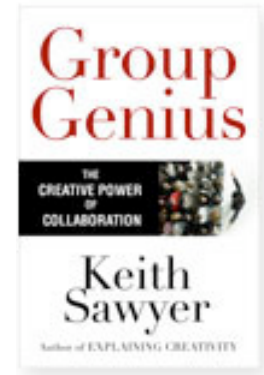
Lessons for Device Collaboration

- Deep listening: listen more than you talk
- Diversity: different sources, different skills
- Communication: frequent and productive
- Move Forward: build on prior information
- Failures: make sure they're graceful so you can have them and learn
- Leadership: avoid rigid hierarchies
- Foster emergence: leave room for new ideas and structures
- Others? What else?

Readings and Assignments

- Readings
 - Group Genius by Keith Sawyer, Part 2
Read critically!

- Assignment
 - Final project, due December 12, 2007





Solitary Ideation

- Brainstorming works best alone
- Yale study in 1958 showed nominal groups (individuals):
 - twice as many ideas
 - twice as many original ideas
 - higher quality ideas
- Independence
- People told to be creative, are more creative!
- People told to be critical have less ideas but more good ones

Diversity

- creative conflict
- better information
- different thinking styles
- ...but conflict must not become personal

More Rules

- keep groups small
- designate a facilitator
- switch frequently between individual and group activities
- lower social anxiety
- create a culture of innovation

Jazz

vs. Classical

-
- base melody
 - jamming together
 - changing group
 - small
 - flat organization
 - innovative

- score
- conducted
- fixed orchestra
- large
- hierarchy
- music unchanged for 600 years