CS 160: Managing Teams

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Administrivia

- Contextual Inquiry due Weds at end of class.

- Status report?

Teams

- *"A team is a **small number** of people with **complementary skills** who are committed to a **common purpose**, set of **performance goals**, and approach for which they hold themselves **mutually accountable.**"* – Katzenbach & Smith

- Unpacking this statement…

Teams

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Teams: Small numbers

- Small numbers are important because they allow direct relationships between all the members.

- It also allows a high level of awareness of how the project is going, and where each member is in their tasks.
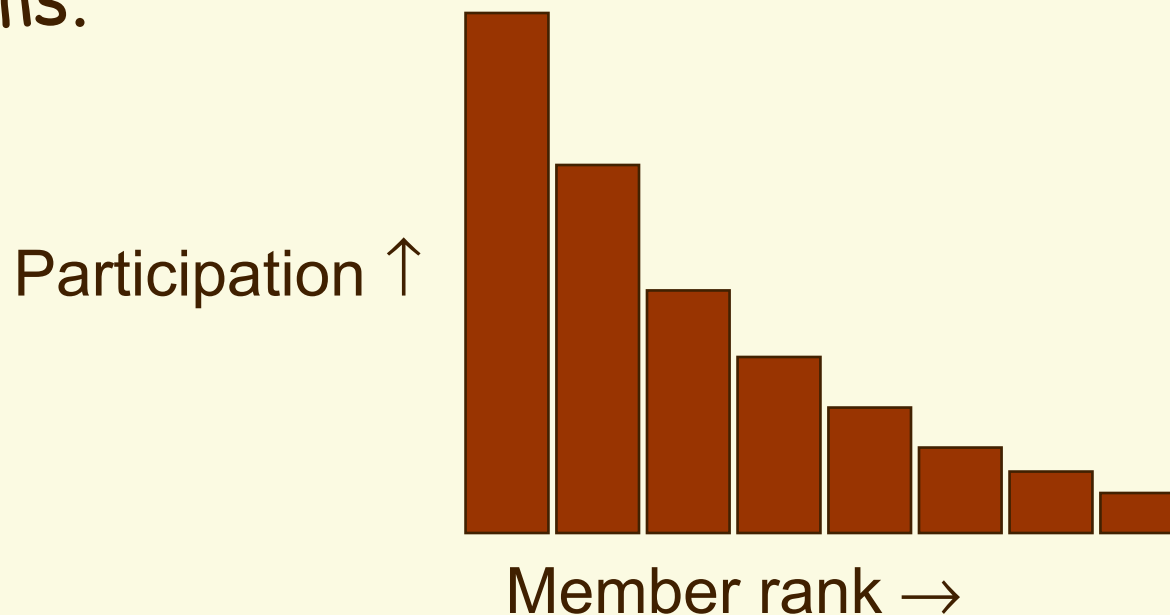
Teams: Small numbers

4 Two problems arise when teams get too big:

* **Centralization:** a few people dominate, and several hardly contribute at all

* **Communication overhead:** the overhead for communication goes up faster than the number of people
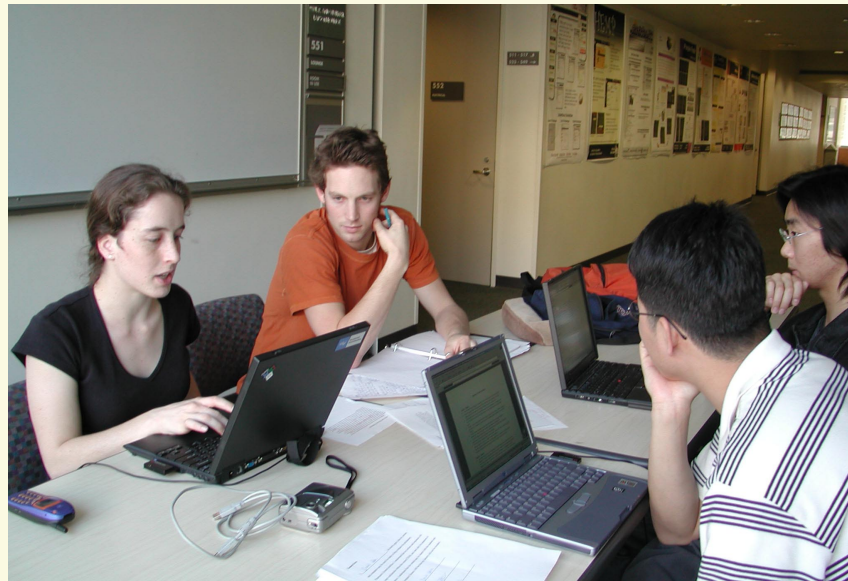
Teams: Small numbers

- For the Livenotes project, we studied group participation as a function of group size.
- Similar participation curves appear in other teams.

Participation ↑

Member rank →

Teams: Small numbers

Team sizes vary of course. For CS160-style project work, it seems like 4-7 is the ideal range.

Team Size: Brooks Law

- In the "Mythical Man Month", Fred Brooks observed that per-programmer productivity in teams **decreases** with size of the team.

- This is often called "Brooks Law": programming teams are less than the sum of their parts.

Team Size: Communication

- Sproull & Kiesler studied team programming in courses at CMU and found:

- Teams that did more communication by email rather than in face-to-face meetings were *more* productive. Teams with only F2F meetings were *less* productive.

Communication again

Sproull and Kiesler's work reinforces the importance of **appropriate** communication:

Face-to-face meetings are a good way to:

- Create and foster common purpose
- Resolve conflict

Email and phone are good for

- Routine communication and decision-making
- Coordination, reporting

Teams

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Team membership

Skills:

* Technical/functional (experts)

* Problem-solving/decision-making

* Interpersonal skills

Building teams: Select for Skill

- Manager should choose team based on skills of members, and potential skills.

- Should personality be a factor?... stay tuned.

Interdisciplinary teams

- Communication on the CMU programming teams was a problem. For an interdisciplinary design team, it is a **big** problem.

- Teams often depend on "gatekeepers" or facilitators with interdisciplinary skills and vocabulary to help team members understand each other. The differences are:
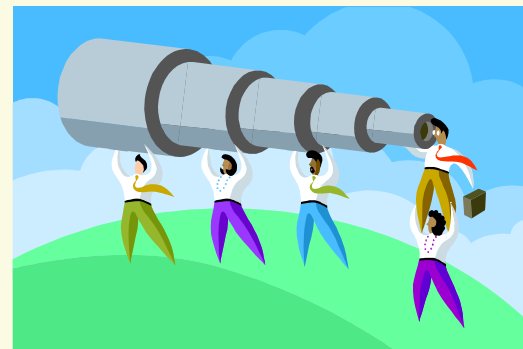 * Vocabulary, Meaning, Purpose

Teams

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Shared Vision

- Helps all members put in their maximum effort:
  - * They are more than employees, they are "owners and managers"
- Allows the team to build and evolve their vision
- Allows leadership and responsibility to be shared among the team

Sharing a Vision

- Sharing a vision takes effort:
  - * Articulate and re-articulate it regularly
  - * Make it concrete and personal
  - * Use evocative language
  - * Look for other successful efforts with similar vision

Common Purpose

- Sense of purpose is a big part of team success.
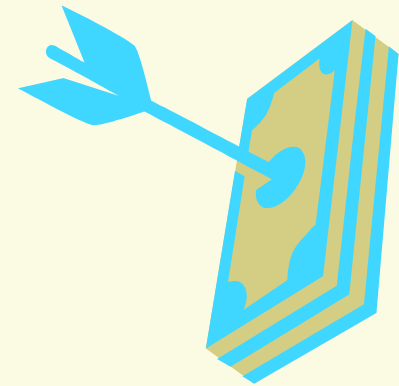
- Katzenbach and Smith: Set measurable performance goals

Teams

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Goal setting

- Defines specific work products (short to medium term goals):

- Facilitates communication and constructive conflict

- Attainable: maintain focus

Goal setting

- Leveling effect: focus on task rather than status

- Defines small wins as part of the larger purpose

- Goals are compelling

Building teams: Urgency

- Establish Urgency

- Purpose is worthwhile

- There is a clear way to move ahead

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Mutual Accountability

- Mutual accountability distinguishes teams from other workgroups.

- In a team, each member measures their success in terms of the success of the team, **and** all its members.

Shared Leadership

- In a team, leadership is often shared.
- This is very hard to do:
  - It requires a high level of trust among members
  - It requires flexibility and self-critique among members
  - It requires a strong sense of responsibility among all members – each individual is responsible for making sure every task happens
  - It requires that all members share a common vision of where the team is going…

Break

📄 Ombudsman?

Encouraging debate

- Open-ended discussion and brainstorming in a team are one of the best routes to creative designs.

- Its hard to do – there are many pitfalls and failure modes.

- But its worth pursuing. Practice techniques and remember the themes from K&S.

Constructive Conflict

- Sometimes, groups strive for harmony and strong consensus.

- Generally speaking, the better the group feels about a decision, the less effective that decision is. (groupthink)

- Good decision-making involves resolution of differing viewpoints - constructive conflict

Conflict and Creativity

◪ We saw that the most effective enhancer of creativity in a group is an **authentic dissenter**.

◪ Someone who is credible and who genuinely disagrees with the rest of the group.

◪ Some groups use "devil's advocates" for this reason. They're not as effective.

Conflict and Creativity

- The key to constructive conflict is to focus on the *task*, and on *individual ideas*.

- Ideas and opinions must be detached from the individual (e.g. Pixar)

- Ideas have to be clarified and developed before they can be criticized.

Bring in fresh facts and ideas

- Fact: teams do not share enough information (Hinds, Stanford).

- Regular updates and exchanges are much more valuable than they seem.

- This builds a sense of community and common knowledge.

Spend time together

- Casual or "unstructured" interactions are very important for building shared context.

- Putting people in the same space is the best way to do that.

- Recreating this online is a bit of a challenge.

Positive Feedback

- Don't miss an opportunity to reward or encourage legitimate effort.

- Positive reinforcement encourages more effort and performance beyond expectations.
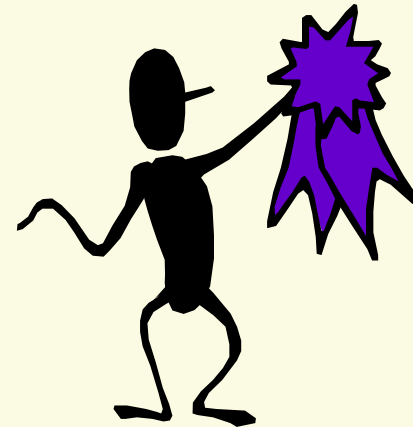
When things don't go so smoothly

When things go Wrong…

- Remember first your personal goals for the course:
  - * Learning about UI design, which means an entire process including working in a diverse team
  - * Working on an effective *team* is a great learning experience
  - * Working on a *difficult team* is also very useful – you will develop coping skills that will be very important later

Channel personal drives

- Most personal drives can work *for* the team or *against* it.
- When conflicts occur, one or more of these drives is pushing in the wrong direction.
- Recognize your own drives first:
  - Whenever you disagree with someone, ask yourself why and what motive is at work?
  - Ask how your response *advances* the team's goals, and your own personal goals

Channel personal drives

- After analyzing your own drives, think about others, but:
    * Recognize that you can only guess at what drives someone else, and that changing their actions is much harder than changing your own
    * Avoid passing the blame

- Still, by understanding others' drives, you may be able to steer their participation in the project so that they accomplish more.

Channel personal drives

- Competitive instincts:
  - * There is actually no-one to compete with in this course, but if you have a competitive drive apply it to other teams, not to your team-mates.
  - * Appreciate and "own" your team-mates skills and successes as your own.
- There are good and bad designs, but you are not the judge.
- User testing is the ultimate arbiter.

Channel personal drives

4 Perfectionism:

* UI Design is mostly compromise – deadlines prevent you from doing as well as you would like to. Try instead to do the best you can in the time allowed.

* Include team cohesion as one of your goals. Work on it.

* Recognize that your future achievements will rely on many peoples' efforts beyond your own.

* Mastering **teamwork** is much more important than mastering Java, C#, or any design process.

Keep it concrete

- People often argue at length about *principles* before discovering that they agree on *specifics*.

- Ideology is fun to talk about, but not under time pressure when a project is at stake.

- Establish your team goals up front, before you are immersed in the project.

- Frame arguments in terms of concrete situations, personas, devices and interfaces.

Detach ideas from owners

- Some of the most successful teams are characterized by extreme freedom of expression, especially criticism.

- It is ruthless toward ideas, but never personal.

- Success is judged in terms of how far the idea progresses, not how much each person contributes.

Help out

- When conflicts arise between other team members (not yourself), it is **your** problem as much as theirs.

- You are in a better position to mediate and resolve the conflict than the people having it.

- Avoid taking sides, instead look for common ground. Keep the discussion concrete, specific, and revisit the teams' goals.
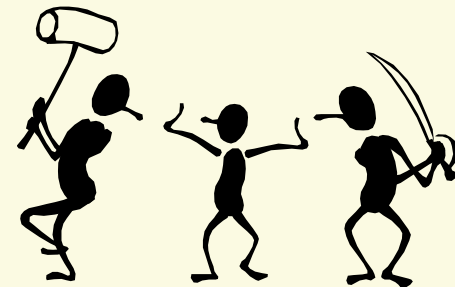
Summary

- Teams are small groups, which are more than the sum of their parts
- They are characterized by shared goals, leadership and mutual accountability
- Design benefits from uninhibited discussion and creative conflict
- Conflicts are an opportunity to improve team-building skills – use them
- Conflict resolution is a whole-team task