

Team Formation and Interaction in Student Projects

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- Two financial accounting projects, 25% of course grade, completed by teams of 4
 - o Part 1: Analysis of accounting policies, financial statements, governance of fictitious company
 - o Part 2: Analysis of accounting policies, financial performance, governance of real company
- 204 individuals consented to participate (44% of students completing the course)
 - o Participants did not differ from non-participants on any course component:
 - Individual projects (94% vs. 94% and 88% vs. 88%)
 - Midterm exams (74% vs. 71% and 68% vs. 65%)
 - Team projects (86% vs. 86% and 90% vs. 89%)
- Participants represented 84 total teams
 - o 50 self-selected; 34 instructor-assigned (17 skill-complement, 17 random)
 - Skill-complement teams were formed by the instructor, balancing math, writing, and people skills
 - o Because teams are the unit of analysis, average team ratings were computed using the individual ratings of each participant in a team
- Questionnaire administered three times as the team projects were being completed
 - o Based on questionnaire developed by Aube & Rousseau (2005) *Group Dynamics: Theory, Research, and Practice*, Vol 9(3) Sep 2005, 189-204.
 - o Included scaled questions about various aspects of teams, including:
 - Inputs
 - Homogeneity ($\alpha = 0.842$), Goal commitment ($\alpha = 0.899$), Team potency ($\alpha = 0.874$)
 - Process
 - Degree of participation ($\alpha = 0.793$), Workload sharing ($\alpha = 0.917$),
 - Task interdependence ($\alpha = 0.720$), Supportive behaviors ($\alpha = 0.891$)
 - Outputs
 - Team viability ($\alpha = 0.867$), Team performance ($\alpha = 0.793$)
 - o Included open-ended essay questions about group interactions
- **Did team formation affect inputs to the team?**

Quantitative Findings

- o **Self-selected** teams perceived they were **more homogeneous, committed, and potent than instructor assigned** teams ($p < 0.001$)—a perception difference retained throughout the term
- o **Skill-complement** teams perceived they were **less homogeneous than randomly assigned** teams ($p = 0.077$)—this difference was particularly strong early ($p = 0.032$) but dissipated by the end of the term ($p = 0.904$)

- **Did team formation affect inputs to the team?** (continued)

Qualitative Findings

- Team formation effects were present along several dimensions, including ...
- ***Homogeneity/Diversity***
 - Self-selected teams indicated they valued their similarities
 - Our team works well together. Since we picked our group we knew everyone in our groups before hand and get along very well. (A1_64)
 - We all get along and have the same sense of work ethic. (A1_3)
 - Instructor-assigned teams valued their differences
 - All of my group members and me were just commenting on how lucky we were in the random formation of our group. We each have different strengths, but are able and willing to help each other as needed. (D4_76)
 - Our group definitely provided a good mix of strengths and abilities, as some of us are better writers, better at math, better at computer programs such as Excel and so on. It has been a great experience. (D3_54)
- ***Comfort/Trust in Team Members***
 - Self-selected teams felt very comfortable with other members right from the outset of the project, placing a great deal of trust in them
 - I really like this group - which was a given because we chose to work together! We didn't meet very often, but ... I really never believed that work assigned to my group members, or to me, wouldn't get done. (B1_7)
 - Instructor-assigned teams were uneasy at the outset, finding it difficult to talk with other team members and place trust in them
 - We seem to have a bit of a hard time actually communicating when we meet to discuss the project. (A4_95)
 - I must admit, I am a little skeptical about group work. I find it hard to put all one's confidence in a new acquaintance. (A3_115)

- **Did team formation affect the process by which teams functioned?**

Quantitative Findings

- **Self-selected** teams perceived **more equitable participation and sharing of workload than instructor assigned** teams ($p=0.029$ and $p=0.010$), and by the end of project 2 they were more likely to structure their work in ways that created interdependencies among team members ($p=0.016$)
- Skill-complement teams did not differ from randomly assigned teams on perceived differences in participation or workload sharing ($p=0.585$ and $p=0.146$)—however, **skill-complement teams created more task interdependencies** than randomly assigned teams ($p=0.044$)
- **Self-selected** teams perceived **more supportive behaviors than instructor assigned** teams ($p<0.001$) throughout the team projects
- Skill-complement and randomly assigned teams did not perceive overall differences in supportive behaviors ($p=0.189$), but **skill-complement teams cared a little less about other team members** at the end of the projects than randomly assigned teams ($p=0.056$)

- **Did team formation affect the process** by which teams functioned? (continued)

Qualitative Findings

- ***Fast/Slow Start-up***

- Self-selected teams felt that their familiarity with one another enabled them to get off to a quick start
 - I particularly enjoy the fact that we were able to select our teams, as then we generally have a more cohesive group, and can bypass the schmoozing. (A1_42)
 - We quickly got together and delegated tasks to each other. (A1_60)
- Instructor-assigned teams often reported they got off to slow start; they had difficulty finding one another or getting together
 - At first our team had difficulty finding a time to work together. We neglected to exchange contact information properly at our first seminar and therefore fumbled around a bit with the crappy email system you guys set up to let us contact each other. (A3_74)

- ***Easy/Difficult Accessibility***

- Self-selected team members were readily available for other team members to contact and meet with
 - We meet nearly every day for something, be it accounting, management, or business. (A1_1)
 - Our team is very open to each other, willing to work in and outside of school hours. (A1_60)
- Instructor-assigned teams expressed frustration with difficulties in contacting or meeting with members
 - We have trouble meeting because two of the students are in a 2nd year business cohort, one is a science student and one is in 3rd year business. (C4_56)
 - There were specific group members that didn't live up to my expectations. And some were hard to contact during various occasions when I needed them most. (B4_38)

- **Did team formation affect outcomes?**

Quantitative Findings

- **Self-selected** teams perceived **greater viability than instructor assigned** teams ($p < 0.001$) throughout the team projects
- Skill-complement and randomly assigned teams did not perceive differences in team viability ($p = 0.403$)
- **Self-selected** teams perceived **their team produced a higher quality of work than instructor assigned** teams ($p < 0.030$), but they did not feel their teams were more productive ($p > 0.224$)
- Skill-complement and randomly assigned teams did not perceive differences in work quality or team productivity ($p > 0.171$)
- Project grades did not differ by team formation condition, either on an overall basis ($p > 0.308$) or by part of project ($p > 0.235$)

- **Did team formation affect outcomes?** (continued)

Qualitative Findings

- In contrast to the memorable horror stories that instructors hear from teams, most teams in this study reported a positive experience overall, regardless of the way in which teams were formed. Specific ways in which students appreciated working in a team are listed below.
- Many students commented on how enjoyable it was to be together
- Students developed social bonds and combined work with pleasure
- Students appreciated that they could work to their strengths, reduce their individual workload, learn from others, and enhance the quality of work
- Teams reported learning how to trust, manage, and relate to others
- Teams learned to take pride in completing work effectively as a team and to “step up” as a team member
- Even team members who had a unsatisfactory experience found that the team project was beneficial, if only to reinforce their appreciation for individual work

Advice for Students

- **Know What You Want.** Talk with your teammates about the quality of work your team aspires to produce and the amount of commitment to reach that goal. What type of team do you want to be? Define the general rules by which the team will work. How will the team determine who does what? How often will you meet, and for how long? How will you keep in touch between meetings? Spending a few minutes on these issues at the start can save you much frustration and disappointment later.
- **Plan How to Get There.** Team projects can feel overwhelming at first, and you may be tempted to quickly split-up the work so that everyone can get started on it. Don't do this. Take time to identify (a) the specific steps needed to complete the project, (b) the skills required at each step, and (c) the strengths of each team member. Two benefits of being in a team are that you don't have to be an expert in everything and you don't have to do it all yourself. So assign work to team members based on their strengths and workload, ensuring that everyone gets to do their fair share. Our research shows that teams earn better grades when everyone participates.
- **Work as a Team.** Teams are more than just groups of people. To be a team, you must be committed to the same goal and be willing to “step up” when you can. Teams can accomplish much when working as a single unit, but not without the *individual* effort made by team members. Our research shows that the highest project grades are earned when team members rely on and help one another.
- **Build the Team.** Teams rarely are perfect when they first start. It takes time to build the trust that is needed when relying on others. Help each other along by scheduling times to review each other's work and to give constructive feedback on how it can be improved. As a team, assess the whole team's performance too. Do this often, and small problems will be less likely to turn into a big mess.