



## Panel 5C Teambuilding and Team Dynamics

**Facilitator:** Olga Pierrakos

**Panelists:**

Laura Hirshfield - University of Michigan

Julie Steinbrenner - University of Colorado Boulder

Luke Nogales - New Mexico State

Shraddha Sangelkar - Rose Hulman Institute of Technology

Andres - graduate from Northeastern

**Description:** Forming, storming, norming, and performing – we want all our teams to successfully complete this process. This panel will share ideas from instructors and a recent capstone student on how to form teams and help them work together successfully.

**Notes:**

**Panel Changed:**

**Moderator:** Jesse Pappas, Wake Forest

**Panel from left to right:**

**Laura Hirshfield - UMichigan**

**Julie - UC Boulder**

**Luke Nogales - New Mexico State**

**Shraddha Sangelkar - ME at Rose Hulman**

**Andres - graduate from Northeastern**

**Structure of Today:**

Tupmen's (spelling?) model of teaming: **Forming, storming, norming, and performing.**

Already had other sessions about reactive issues, so let's focus on proactive approaches. Tools, strategies, positive interventions are key focus points today.

**Intros**

- Shraddha - teaching curriculum prior to capstone on teaming strategies so students have team experience prior to capstone
- Luke - industry experience
- Julie - larger team sizes of 7-10 in her course
- Laura - Diversity and Inclusion lecturer



## Panel 5C Teambuilding and Team Dynamics

- Jesse - social scientist by trade

### Formation

Key strategies/tools when it comes to forming good teams?

Shraddha: If doing self-selection, give them structure (avoid friends and athletic teammates). In capstone, collect more in-depth information like preference of project over team, skills, people they want to work with. If something is working in your institution, don't break it.

Laura: Biggest goal is removing barriers to allow best team culture to form. Looks different between institutions and classes. I lead them through ideation, I want the teams to be passionate about what they are creating - makes it so personality clashing is less of an issue when the passion is there. Identify barriers and work to eliminating them early.

Specific tools:

Laura: CATME, Tandom, manually do it so student identity is also taken into account. Avoid isolating underrepresented students in a team.

Audience: Willingness to work on the project is a primary variable for me (passion for project). Can you speak to creating the teams in under a week while trying to get everyone on their top choice?

Julie: Optimization algorithm that I developed with another prof that can create teams if you want to try it. We do something that is labor intensive. Project preference survey with all students, then we manually form teams. We tried to use algorithms but it's messy. Mostly we look at interest, but also distribution of GPA (heterogeneous GPA within a team). We understand GPA is not entirely indicative of effort in capstone. We try to ensure no dominating personalities are fully together. We create the teams FIRST then they have to determine what project that team should take on. The team has to create application packages to sent to the client. If clients don't pick a team, we identify that the team as not as well functioning from the very beginning.

Shraddha: Somethings work best for you, then don't break it. Research states heterogenous GPA works best. There is a paper that assesses motivation as well.



## Panel 5C Teambuilding and Team Dynamics

Luke: Also looking at the client - which ones are high priority client - they get some of higher students. Make sure the students are getting on to the project that they want. We show them the distribution of how many got their top projects, so students understand teaming.

Laura: Career goals versus students that are just excited for a project (less pressure). Try to put all career people together so same motivation. SOmetimes email specific student so they are aware that you had their best interests at heart, but couldn't put them on their top project.

Clarification for Julie's process: We do create the teams based on their top project choices, they just aren't assigned to those projects just yet. They still have to bid, but the project choices are part of the team creation process so there is similar interest and motivation. Form similar size teams of 6-7 students. Larger teams are added roles with specialty skills like EE or CS. More finer details on creating projects. Teams don't meet their clients until Week 4.

### **Storming**

Jesse: this is typically where we focus on, based on conflict and intervention. This is when the high of team creation has worn off and now they have to actually work together. How do we proactively encourage teams to reduce conflict and confusion? Let's focus on prevention of conflict.

Julie: We know students are conflict avoidant or conflict ignorant. Productive dialog means conflict - diversity of opinion and thought is conflict. They are scared conflict will have repercusion. Give students a toolset on how to approach situations before they happen. Tools to understand and leverage situations. We do team charters, we teach social styles so they understand learning styles of teammates - Social Styles Framework. Also can use Enneagram, MBTI, etc. Make them aware that it is advantageous to be proactive with situations early.

Shraddha: Train students in CATME ahead of time. They do it three times per semester. We train them to understand how it affects their grades. We also use timelogs so the peer evals and timelogs gives indication early of any issues.

Jesse: students are scared to give real constructive criticism.

Shraddha: using CATME wrong, teach them from the start that they need to give better criticism early.



## Panel 5C Teambuilding and Team Dynamics

Luke: tell them to stop and ask questions in a way that does not make it accusing. Get to understand their POV for better awareness.

Jesse: did a survey asking students what they would advise juniors. Most responses were to tell the students to get to know their teammates outside of class. Shared positive experiences.

Laura: vulnerability - students need to feel comfortable around each other. Students tend to take criticism as an attack on them rather than their work. Be open about mental health. Create culture around me to feel comfortable so they feel comfortable around team too.

Shraddha: Intervention meeting: each person states what they think is going on. Then each person takes a turn summarizing what they heard from everyone else. Facilitated conversation helps the team determine issue.

Andres: as a student, I see all these tools and realize I've been doing these without realizing.

Audience: Do other people organize bonding?

Julie: we require an assignment where everyone has to go to a meal together and take a team bonding photo. Teams turn the photo into a competition to create the coolest photo. Originally also catered a meal with the faculty mentor, but students were too nervous to eat around the mentor, so they adjusted that to make it more friendly and inviting.

Audience: be careful with friendship. if you are one female with four other males, it may be hard to bond with them. Difference between social cohesion and task cohesion. Want cohesion. Friendship make cause exclusion.

Julie: If students are expected to be friends, it can set an awkward dynamic. So be clear with expectations

Shraddha: everyone brings a diverse perspective to the project

Andres: We went to events through the university to enhance team bonding, but wasn't required. But if you set an expectation of bonding, there could be conflict and alienation. Your



## Panel 5C Teambuilding and Team Dynamics

working on a professional project, so if you aren't friends it isn't the end of the world. Find common ground.

Laura: First year design CATME data - teams with one woman were more satisfied than when the team has 2-3 women together. Surprised by that result. We think it is because with two women, they can recognize each other as being micro-biased so the women can recognize the issue.

Audience: We have the students create a one-page biography about themselves to give to the client, so they get to know more about each of the members. But also the teammates get to know more about each other at the same time. Not required, but encouraged.

### Norming

Jesse: this is when external relationships are important - technical coaches, capstone faculty, etc. Strategies for good client communication to keep client participating and motivated?

Luke: When students feel like the client doesn't care and they don't meet regularly, the students become disengaged. So when we talk with the clients, we make sure the project is important to the client and they will say that specifically to the client. There needs to be a champion of the project at the company. There needs to be vested interest in the project. We have a weekly check-in with eduSource with the students to ensure projects are going well - if the results of that check-in shows client issues, the pros. Step in.

Andres: Worked on an assistive device for blind students. We got to meet with a blind professor on campus. She was interested and engaged. Initially she was not, so we kept changing our solution until she was excited. Changed project based on her values.

Julie: this is a challenge. That's what hard for industry - giving the time and finding the right scope. Students are more vocal lately that they only want to work on the project if it is critical. Have dialog with the student though that they don't need that pressure of a critical path project - remember you aren't being paid by the company.

Jesse: someone else said that they couldn't keep the clients interested at \$5,000, so the fees went up to \$15,000 to keep them engaged.

Andres: the potential impact of a project is important to keep the team engaged too



## Panel 5C Teambuilding and Team Dynamics

Audience: the other issue can be that the client can be TOO engaged - overengagement with very specific project changes.

Andres: told the client we understand what she wanted, but there wasn't time and resources to move it in her direction.

Jesse: were you comfortable having that conversation?

Andres: yes we were. Probably harder to say no to a industry customer. Suggest it as a future capstone project.

Shraddha: watch new clients very closely to establish trust. If a see a team make a decision, but client says they want something else, she trains them how to negotiate and say no to the client if their data says they should go the team's chosen direction.

Luke: tell them to stop and ask questions. Ask why the client wants to pivot. Client might have a different vision. Client goal is to meet or exceed expectations. Need to have that dialog.

Audience: sometime the client doesn't know what they want.

Julie: Tell the students: Never agree to make changes during a meeting! Table that decision, have the team consult with their faculty mentor, etc. Evaluate the risks - budget, time, etc.

Audience: If it happens early enough, you can analyze both solutions - the team's and the client's. This allows the team to defend their decision - good learning opportunity.

Audience: Have the client describe the problem and what you want the solution to do - NOT what the design should be. Problem focused not solution focused.

### **Performing**

Jesse: Now they're well into the project. How do you keep them motivated and amp up productivity towards the later half? Is your style more complimentary or tough love?

Shraddha: I'm very much tough love. The students understand when I say they did good, they know they actually did good (rather than fluff). Don't answer the question of "what do you



## Panel 5C Teambuilding and Team Dynamics

think?”. Also they know that when a student is not pulling their weight, I step in. That provides the trust.

Luke: Tell them this is practice for your career. What can you really achieve? Some do internalize that. Give specific feedback and ask where they want to go in their career? Some are waiting to be asked and challenged.

Julie: we make a big deal about the Expo - industry is coming to judge the projects. Ask them how do they want to feel during expo. We want you to feel confident when standing next to your project. There is a differentiation of performance - make sure they know there is fairness in grade distribution. Intrinsic awards and validation - what are you personally proud of with your work?

Laura: Never had issues pushing teams to the finish because I instill the passion at the beginning. It's about the journey. Need to show you really tried to solve the problem throughout the life of the project. They want to do it for themselves. I'm not tough love, I'm nurturing, but I have high standards.

Luke: at start of class I tell them two things matter: contribute significantly throughout the course (not just start or end) and attitude. Everyone knows everyone else has had that conversation about attitude and contribution.

### **Conclusion**

Jesse: Now at end of project, final push of last weeks - there are some teams that self-destruct at end while others drive straight through. Have you noticed anything that categorizes those that thrive under pressure versus those that crumble?

Julie: some of the teams that struggle more have learned the strategies early, so they thrive at the end. Teams that don't address issues, don't have the experience working through conflict and have a harder time at the end. We tell students when working at the start, we worry about the teams that don't acknowledge there are issues. Tell them that early so they know to work through and acknowledge issues early.

Shraddha: Last quarter I back off and let them be due to senioritis.



## Panel 5C Teambuilding and Team Dynamics

Laura: goes back to agency. Investment in the project provides that extra motivation beyond grades. Most don't care about the grades at that time - might already have jobs or just want to be done.

Audience: One member of the group not contributing, what mechanism do you use since we can't fire them?

Luke: address the student and address the team. Weekly check-ins help identify issues. GTA reaches out initially if there is a recognized problem. Typically this resolves it. If it doesn't, then I reach out - if you aren't contributing you won't pass the class. Let them know a couple times that you could potentially fail (document this!). On the teamside, tell them to keep the student included, might have to do double planning, but they need to stay in the loop. There needs to be a record there. At end of the term, each person writes a report on what each person did.

Laura: We do a flip of that. First try to understand why, then I'll help address that. If a team is struggling - have a team submit a work plan that is signed of who does what. Separate grade to the person if their portion is bad.

Audience: