Panel 3B: Teamwork in Capstone - Good and Bad Conflict

Facilitator: Nathan Kathir (GMU)

Panelists: Zachary (Zac) Bujnoch (Texas A&M), Andrew Dunleavy (RHIT student), John Estell (ONU), Noemi Umanzor (GMU Student)

Description: Capstone means teams and teams can mean conflict. The panelists will share their experience in dealing with unproductive conflict and harnessing productive conflict.

Notes:

PANELIST Bio Sketches

Dr. Nathan Kathir - Faculty, George Mason University: Panel host/facilitator. Opens the session, introduces panelists, asks questions, and closes the panel.

Dr. Nathan Kathir has been teaching, managing, and directing capstone courses in mechanical engineering at George Mason University. Before becoming a teaching professor, he worked in industry and government for 33 years. He noted that this experience is what he brings to the capstone classroom.

Dr. Zachary (Zac) Bujnoch - Faculty, Texas A&M Biomedical Engineering: Dr. Zachary Bujnoch runs a design curriculum that includes several precursor courses leading up to a two-semester capstone. He has approximately 170 students and around 35 teams per year in biomedical engineering alone. His education is in engineering, and he also holds an Executive MBA. He explained that executive management and motivation skills used for employees can also be applied to managing large groups of students. He shared experiences and examples related to conflict management at scale.

Dr. John Estell- Faculty, Ohio Northern University: Dr. John Estell teaches project group management course and project development course. He shares ideas about psychological safety and conflict resolution as part of his class experience.

Noemi Umanzor - Recent Graduate, George Mason University: Recent mechanical engineering graduate who shares experience for team conflict from student view.

Andrew Dunleavy - Recent Graduate, Resident Assistant, Rose-Hulman Institute of Technology: Recent mechanical engineering graduate who discusses student-team experiences and conflict management.

Question 1 - Dr. Nathan Kathir to Faculty: From your experience, when students had conflict in teams, how did you solve it? Did it always end badly, or did the projects sometimes get better because the conflict was handled?

Dr. Zachary Bujnoch: Conflict is necessary for teams to exist. Teams normally go through phases such as forming and storming, so conflict should be expected. If you are not having a conflict, I would argue you are not working on a team in anything that matters so you are not actually doing exercise. When you have expectation that conflict is going to happen, then an expectation that is not bad. Conflict is not failure; failure is not recognizing it or not dealing with it.

Most reported conflict follows a common pattern: a high-performing student is unhappy with one or more teammates. The first response is basic communication: ask whether the student has talked directly to the other people and whether they know how the student feels. Often that alone resolves the issue.

Unproductive conflict is when the situation interferes with teammates learning. One extreme example involved a teammate taking the physical project home and having her boyfriend do the work for her, with the boyfriend even waiting outside class and looking in the window. That required real faculty intervention.

Dr. John Estell: Faculty usually do not hear about productive conflict because teams resolve it themselves. The most common unproductive conflict-resolution strategy students use is avoidance. Faculty often hear about problems only when they have become disruptive. Students need to be taught to tell faculty early if there is discord so the issue can be discussed in advising meetings.

Dr. Nathan Kathir: Often everything seems good in the fall, but after spring break conflicts appear. By February or later it may be too late to intervene effectively. Friends often do not want to complain about teammates, which makes the problem harder.

Question 2 - Dr. Nathan Kathir: For the recent graduates, how can faculty better at teams and avoid conflict?

Noemi Umanzor: She hand-picked a team of top performers who were ambitious about the project. However, there were “too many cooks in the kitchen.” In the fall, different ideas about how to proceed became divisive. The team asked faculty advisors to hold a meeting so each member could give feedback in an unbiased space.

At first the team had two-week status meetings, but those did not create space for real collaboration. After the advisor meeting, our team moved toward working meetings where team members actually worked together on the problem instead of each person working in a silo. We also clarified roles to reduce overlap while keeping openness to help each other.

Andrew Dunleavy: On a small team (4 people), conflict can be hard to raise directly. One on one or one on two meetings help more. Team artifacts such as guidelines or team charters help only if teams revisit them. It helps to ask individuals, not only the whole group, whether deadlines are being met and whether everyone feels they are contributing effectively toward the team goals.

Question 3 – Audience: How do you handle conflicts when the person on the team is completely oblivious to the fact that they are causing the conflict?

Dr. Zachary Bujnoch: Directness matters. Tell the person. If the issue is an overachieving leader who is partly causing the conflict, explain that conflict is a two-way street. Even if others are underperforming, the high-performing student can only control their own actions and may need to do more work to get the team outcome they want.

Faculty are in a position where they can tell students directly that they may be wrong and need to adjust. That is harder for peers or partners to do.

Dr. John Estell: When an underperforming student does not respond to meetings or advice, escalation may be necessary. At our school, unresolved issues can go to the department chair. Sometimes that wake-up call works; sometimes it does not. In severe cases, students may fail or have a charitable withdrawal and repeat that part of capstone.

The key things in this situation is if you try to work with students as much as you can, but not to the point that you are playing twister bending over backwards, doing a hat flip, and so there ahas to be a point where you just say, they get the wake up call by withdrawal or a failure.

Dr. Nathan Kathir: A similar escalation process exists in his context: team advisor/instructor, then department chair or higher. He gave an example where a student escalated through parents and the dean’s office instead of following the normal chain of communication.

Noemi Umanzor: When she had differing ideas with a team member, it helped to sit down one-on-one and ask about the other person’s thought process: “This is why I see it this way; why are you seeing it this way?” That conversation can reveal whether compromise is possible or whether the other person has a better idea.

Question 4 - What if apparent underperformance is caused by personal circumstances?

Audience: Assumptions are often wrong. He described a high-functioning team where one student suddenly stopped participating. Others assumed the worst, but after a private conversation the instructor learned the student had a serious family illness situation and could not talk about it without crying. The instructor explained to the team that there were outside circumstances without revealing private details. The student contributed independently where possible and accepted a lower grade while continuing in the course.

Dr. Zachary Bujnoch: Students will not disclose these things unless faculty create a safe space. In large design courses, some students will inevitably face death, illness, or major family issues. Infinite empathy is important.

There are also accommodation and privacy challenges. A student may tell the instructor something they do not want the team to know. The instructor must decide how to help while respecting the student's autonomy and privacy.

Dr. Nathan Kathir: It is hard for faculty to get close to personal situations, but I try to know students enough that they feel comfortable approaching him or another faculty member on the team, especially if some students may not feel comfortable speaking with him directly.

Question 5 - How can an instructor detect team conflict early?

Audience: As an instructor, I am not with the team all the time, but I touch base every week. What red flags should I look for? Should I assume something is going on and continually deep dive to find out what is really happening?

Andrew Dunleavy: Both extremes have problems. Students who avoid conflict may mask the issue and simply do the extra workload rather than report it. Meetings matter: weekly vs. biweekly, whole-team vs. individual, and how the team agrees early on to report issues. Revisit the process after a few weeks or months and ask whether it still works.

Dr. Nathan Kathir: I use peer grades or peer evaluations each semester. Students may not come talk to him, but peer evaluations show where trouble is growing. I can then call students offline and talk to them. In reports, I ask who wrote and who observed or reviewed each section. If only two team members are writing everything, he knows who is not contributing.

Dr. Zachary Bujnoch: Use regular assignments as touch points. Design assignments can reveal who is engaged and who is not. In my program, a core faculty team reviews assignments and can see red flags, especially when individual contributions are visible.

Noemi Umanzor: Peer review at the halfway point and end of the semester is helpful. In the first semester, faculty should come in and discuss feedback in a safe space so students learn tools for dealing with conflict before the next semester.

Dr. John Estell: Decentralized programs are harder because different advisors may notice different things. Peer evaluations are often the safest place for students to reveal what is happening, but instructors must look for triangulation. If everyone mentions the same problem, it is more credible; if only one person complains, more due diligence is needed. One-on-ones are ideal, but it may be best to meet with everyone so it does not look like one student is being singled out.

Question 6 - When should students understand conflict management?

Audience: For recent graduates: since storming is normal, at what point did you feel you had a working understanding of conflict management? For faculty: when do you expect students to have that working understanding?

Noemi Umanzor: At the beginning of capstone, the team used a team charter, but they did not yet know the full scale of the project. Because people overlapped and all wanted to learn, conflict developed. The faculty advisor meeting, one-on-one conversations, and transition to working meetings helped them understand and manage the conflict.

Andrew Dunleavy: I do not consider normal early friction to be major conflict until it becomes detrimental to someone or to the work. The storming phase ends when conflict shifts from small disagreements to active harm or obstruction. Peer evaluations and work products help show when that line has been crossed.

Dr. Zachary Bujnoch: The first big test in the first semester is usually when storming should start being resolved. In my program, teams must build or demonstrate a proof-of-concept early. Each team member also has an individual proof-of-concept contribution. That first major deliverable exposes many team issues.

Sometimes the major challenge is not the first assignment but sponsor interaction. Because many projects are externally sponsored, sponsors can create conflict that students must manage. This may happen in the first or second semester.

Question 7 - How do you teach inclusiveness and empathy when teammates have hidden issues?

Audience: After milestones, peer feedback may show red flags. Sometimes the issue is not laziness but mental health, grief, chronic fatigue, neurodivergence, or family pressure. How do you teach students to be inclusive and aware that teammates may be going through something else?

Dr. Zachary Bujnoch: Empathy affects design and teamwork. Technically, students who need formal accommodations should work with the accommodation office. Faculty put themselves at risk if they grade or treat a student differently without official accommodations. But faculty can still coach and create a safe space.

I cannot disclose private information about a teammate, but I can tell the team that there may be things I cannot share and that students should not assume the worst. Students need to understand that people are different and may have unseen issues.

Dr. John Estell: The core problem is getting typical college students to realize that other people in the room are not like them. Psychological safety lectures can introduce this, but some students dismiss it as common sense while others are grateful for it. The hard part is reaching closed-minded students.

Audience: Does the accommodation office help neurodivergent students develop ways of working with their team, such as saying “this is what I need to interact with you”?

Dr. Zachary Bujnoch: Not really, or at least not consistently. Accommodation offices often define what is different and what is allowed, but they may not provide detailed team-interaction coaching. Anxiety and mental health-related accommodations are a large category, and the number of requests is very high.

Dr. John Estell: At small schools, these offices are often understaffed and underfunded, making it hard for students to get that level of support.

Question 8 - What functional strategies can unite a divided team?

Audience: Do you have functional strategies to unite a divided team - whether the conflict is interpersonal, professional, or just that the team is not gelling?

Dr. Zachary Bujnoch: My program front-loads expectations. Peer reviews happen twice each semester, and faculty can lower an individual grade by up to two letters based on peer reviews alone. If two or more teammates report an issue, that is a major red flag.

Safe space, vulnerability, and authenticity matter. I try to model comfort with failure and direct honesty, so students believe me when I tells them to address problems. This is labor-intensive but useful.

Dr. John Estell: Set expectations for feedback early. I use the saying: bad news is good news, good news is no news, and no news is bad news. When a female student reported that a male teammate was dominating conversation and not letting women speak, the instructor framed it as useful feedback: bad news is now good news because the student can grow from it.

Dr. Zachary Bujnoch: With interpersonal conflict, I often asks the student to speak with the teammate first, unless the student feels unsafe. Faculty intervention comes later unless safety is an issue.

Dr. Nathan Kathir/Dr. John Estell: Sometimes moving a student to another team is necessary if they do not feel safe or comfortable with a particular person. But if the issue is ordinary difficulty, students are usually expected to try to handle it.

Question 9 - How do you prevent students from coasting on team grades?

Audience: In capstone and project-based classes, it is easy for students to do well grade-wise without doing much because much of the grading is team-based. Peer evaluations often say everything is fine. What strategies reveal underperformance?

Dr. John Estell: Project review boards help. Students present to a mix of faculty and industry people for about 30 minutes, without the capstone advisor in the room. Everyone has to participate, and sometimes a specific student is asked to defend a design decision. If they did not participate, it becomes visible. Advisors can suggest grade adjustments when a student did not earn the group score. However, failing a student may require review by the chair and dean.

Dr. Zachary Bujnoch: This is a serious issue. In my design courses, at least 40% of the grade is individual and no more than 60% is group-based, including capstone. Around halfway through the first semester, teams must define subsystems so each team member has individual responsibilities and individual grades for subsystem prototypes, reports, and testing.

Dr. Nathan Kathir: My class uses about 60% team and 40% individual grading. This limits how far a student can pass by riding on the group. I also use monthly or active-course presentations where it becomes obvious if a student did not work on the material.

Question 10 - How should peer evaluations be designed for large numbers of students?

Audience: For advisors or instructors with many students and teams, what peer-evaluation format works when you do not have time to read complicated evaluations for every team? Numerical scales or open-ended questions?

Dr. Zachary Bujnoch: We use the same scale over several years and across previous design courses. Students give each teammate a grade such as A, B, C, D, or F in each area. This is familiar to students even though it remains somewhat subjective.

A first-pass filter is to identify students reported by two or more teammates. Those cases get deeper review. Some semesters no calculations are needed; in semesters where a grade challenge is likely, the team prepares more detailed numerical evidence, such as standard deviations and comparisons to class averages.

For scale: in my context, about 15% of students may get two or more concerning ratings, such as B/C or lower from teammates. Faculty then focus on those cases rather than reading every evaluation in full detail.

Question 11 - How can advisors or outside experts help with technical subdiscipline conflicts?

Dr. Nathan Kathir: How can faculty help individuals based on specific disciplines to avoid energy being wasted or conflict developing?

Noemi Umanzor: My project was an autonomous robot, but the faculty did not have a strong robotics focus. A research student, or external technical person doing weekly or biweekly check-ins would have helped, especially when the team reached a halt on technical aspects. Even one 25-minute visit from a research student was helpful.

Andrew Dunleavy: At larger institutions, faculty can help by pointing students to the right people in other departments. Students may not know whom to contact in ECE, robotics, or heat transfer. Providing a list of useful contacts or groups can reduce the burden of searching through faculty lists.

Question 12 - Dr. Nathan Kathir: What do you do preemptively to avoid unproductive conflict with teams?

Dr. Zachary Bujnoch: I gives multiple lectures in earlier courses on team conflict and psychological safety. I likes a small book called The Psychological Safety Handbook. I also teaches behavioral psychology from an ethics angle: why good people do bad things. This helps students understand that people handle stress differently.

It is hard to teach all this only inside capstone, so the material is seeded throughout the curriculum in several courses and team experiences.

Dr. John Estell: I use projects that force students from different majors to work together, such as a failed Kickstarter project where electrical engineering, computer engineering, and computer science students can all see their roles. I deliberately creates teams with mixed majors.

I also have students create a five- to eight-minute training video on conflict resolution strategies. They must act out a conflict related to the project and demonstrate two forms of conflict resolution, including distinguishing less useful and more appropriate approaches. Role-playing helped more than simply lecturing.

Noemi Umanzor: Set up a framework. Use a team charter and Gantt chart, but also tell students to hold weekly meetings asking what each person did, what their goals are for the next week, and what could be improved. Weekly feedback keeps the team on track.

Andrew Dunleavy: Expectations should be clear at the beginning.

Dr. Zachary Bujnoch: If expectations are already in the syllabus, stated in class, and repeated in multiple formats, then conflict over expectations is easier to resolve because students know the information was available.

Question 13 - How do you train students to give honest feedback?

Audience: When collecting feedback, students often say everything is fine. To get better feedback, instructors need to show students what will be done with the feedback. For example, show the top three changes made from course evaluations. Once students see that feedback leads to change, they give more honest feedback.

Dr. Nathan Kathir: Industry sponsors can also provide informal feedback. If a sponsor says a team member is not contributing, that is a clear signal. Sponsor feedback may not directly determine grades, but it helps faculty decide when to interview team members one at a time.

Dr. Zachary Bujnoch: Difficulty level matters. Sometimes students do not give meaningful feedback because the project has not become hard enough yet. Making the work harder or more realistic may reveal conflict and engagement earlier, though this creates more work for instructors.

Question 14 - What can Resident Assistant training teach about conflict management?

Audience: Andrew, from your perspective as an resident assistant, do you have examples of training or experience handling conflicts in that role?

Andrew Dunleavy: RA conflict management is often outside the classroom rather than academic. The training is empathy-based and often involves sitting someone down and asking what is happening outside the academic part.

It is important to distinguish classroom stress from home or personal-life stress. Professors can help with classroom stress, such as grades or workload, but they cannot solve home problems directly. Strong communication between academic affairs and student affairs helps, especially at a small institution. I met with department heads and staff across campus during training, which would be harder at a large institution but was valuable.

Closing Advise

Dr. Nathan Kathir: I do not overthink team assignment solely to minimize conflict. I survey students about project areas, preferences, and their top choices. I ask if there is anyone in the class they do not want to work with and tries to honor that. But if students want to work with friends, that is not the main priority. In the real world, people do not choose all their teammates after accepting a job.

Dr. John Estell: Empathy is key. Trying to get into someone else’s shoes helps, even though you may not know their shoe size. Take time, gather information, and have discussions with students before making decisions.

Noemi Umanzor: I expected capstone conflict to be mostly technical, but much of it was interpersonal. Her takeaway is communication and empathy. I am task-oriented, but the project taught me to sit down with people, understand where they are, and recognize that teammates have different priorities outside capstone.

Dr. Zachary Bujnoch: For avoiding conflict, project interest matters more than who is on the team. My program asks students to rank the top projects they are interested in. Friends may game the system by choosing the same rankings, but friend teams often perform in the middle because they do not push each other. Sometimes faculty must push those teams harder.

Listening is one of the most effective tools. When a student comes forward with a conflict, sometimes the best response is to stop talking and let them be heard. A study indicating that the thing students most want from professors is not grades but being heard.

Andrew Dunleavy: In one design class, team selection considered two people students wanted to work with, two people they did not want to work with, how much work they wanted to put in, schedules, and additional comments. This did not determine everything, but it helped predict where conflict might appear, such as when one student wanted to work very hard and another did not.

Dr. Nathan Kathir: I had a class that two brothers asked to be on the same team and later one said it was not a good idea; another team had two workers and two no-shows, but the workers did not reveal the real reasons until the end. If students do not communicate early, faculty cannot help. When students repeatedly do not contribute, I ask directly whether they want to pass and graduate or repeat later.