Teams, Tantrums, and Tears: Conflict Resolution in 2020

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Conflict resolution is a critical part of effective teamwork, yet it is not always addressed directly in capstone design courses. This paper presents a multi-faceted approach to training students to manage conflict on their capstone design teams which has been developed over 10 years of continuous improvement cycles at the University of Colorado Boulder. The approach includes team-based activities, trainings, advising/mentoring strategies, and information gathering, which support students in their development of a conflict management toolkit. In self-assessment surveys completed by our students, we find a significant increase in student confidence that they will be able to 'resolve conflict in a satisfactory way' from pre- to mid- and post- surveys, indicating that students recognize and acknowledge development in these skills during their capstone experience.

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Background

"The better able team members are to engage, speak, listen, hear, interpret, and respond constructively, the more likely their teams are to leverage conflict rather than be leveled by it."[1]

Managing conflict is a ubiquitous challenge in capstone design. Studies have shown that conflict can undermine capstone design team outcomes and performance.[2] Furthermore, students are expected to address conflict in a productive manner as they enter industry. Hurst and Mostafapour reported that 22% of capstone design teams at the University of Waterloo experienced significant conflict, yet three out of four of these teams did not notify their instructors when conflict surfaced.[3] This decision was underpinned by multiple assumptions, including that faculty did not have the skillset to resolve the conflict. To remedy this assumption, we can heed Paretti et al.'s[4] recommendation to train capstone faculty to facilitate conflict management. It has also been suggested that training students on teamwork effectiveness provides them with knowledge and effective strategies to engage conflict.[4,5] If we accept that it is not if, but when capstone teams will have conflict (minor and significant), what are the curricular models that can provide a conflict resolution toolset for capstone design students and faculty?

Pathway to a Multifaceted Conflict Resolution Model

The current, multifaceted model for conflict resolution in mechanical engineering at the University of Colorado Boulder is the result of a 10-year continuous improvement assessment cycle. Initial conflict resolution programming aimed to increase awareness about workplace harassment. Additional curricular components were added to the model as data provided evidence that students were conflict avoidant, lacked norms to organize team objectives, and were unable to approach difficult discussions. This paper describes our holistic model focused on training and coaching students, as well as the active participation of capstone coordinators, faculty advisors, and clients as part of the process.

Team Activity Approaches

Our approach is supported by targeted activities where teams engage in intentional conversation about their individual and collective interests.

Expectation Setting: Team Charters

Research on team effectiveness has identified that it is important for teams to have explicit discussions to set expectations and rules for interactions on the team[6,7,8], and lack of clarity about these expectations has been identified as a source of potential conflict.[3] We encourage proactive discussions on teams about mutual expectations, including workload, attendance and punctuality, communication tools and processes, and decision-making and enforcement processes. Each team's charter begins with a goal statement, where team members discuss their motivations and priorities in order to align their individual goals with a collective team objective. Teams submit their unanimously signed charter five weeks after they have formed their team, so they can draw from their early experiences with one

another to focus discussion around relevant topics. Additionally, at the start of the second semester, teams revisit their charters, re-establish team norms, and update them based on the insight they have gained in working together for four months. Teams are coached to use this agreement for self-governance when conflicts arise, allowing them to center discussions around agreed-upon goals and self-prescribed methods to address issues.

Intentional Communication: Team Role Proposals

Early in team formation, we engage teams in intentional discussion about what each team members may contribute to the team. In our capstone program, each team member has a management/leadership role, in addition to technical design responsibilities, to create shared leadership on the team.[9] One early source of conflict on teams has been the selection of these roles; some students felt alienated or unheard if one team member assigned roles autocratically (often appointing themselves the project manager). Instead, teams now create intentional discussion around who should take on each role after they have been working together for just over a week. Teams write a short "Team Role Proposal" which summarizes their decision for who will fill each roleand why that student is well-suited for the role, for example because of prior experience or a strong desire to build experience with related skills. The role proposal is included in the team's introductory email to their faculty advisor, who can provide feedback on the role proposals upon meeting the team. This approach sets the tone for teams to understand the varied skills, interests, and motivations of their members, which they can draw from throughout the project.

Training Approaches for Toolset Development

Additionally, we conduct a series of trainings focused on providing teams tools to approach conflict management.

Community-Building: Bystander Training

We discuss conflict management on teams through the lens of professional community. We introduce design and the design process as a social process, in which the success of an individual or concept relies on a network of support from individuals (staff, vendors, colleagues). We emphasize that these relationships matter and we coach the students through the process of building and maintaining them.

We offer a session of Effective Bystander Intervention Training[10], which is facilitated by the university's Office of Institutional and Equity Compliance (OEIC) in an interactive workshop. Whereas traditional trainings for workplace interactions focus on sexual harassment and what is *legal* rather than what is *right*, this training emphasizes building skills and strategies for "intervening effectively when [people] witness situations where help may be needed," and analyzing the psychology and sociology of people in difficult situations to develop strategies for handling them. In collaboration with OEIC, we include examples drawn from experiences relevant to senior design teams, such as:

- In your team, you have noticed that a couple of students are consistently ignored. One team member recently made a valuable suggestion, but it went unnoticed until another team member made the same suggestion. You aren't sure if anyone else has concerns, but it's starting to frustrate you.
- In a meeting, a team member seems a bit disengaged and distracted. Later, you walk by the team member who is on the phone and seems to be discussing something upsetting. You are concerned they may be facing some serious issues in their personal life.
- You notice a classmate in a heated conversation with their faculty advisor. The advisor is speaking loudly and publicly berating the student for their performance. The student appears visibly shaken.

Students work through these scenarios using the tools they develop during the workshop by discussing the following questions in class:

- What are some barriers that might prevent you from acting in this scenario?
- How might you approach an intervention? What strategies would you consider?

Empathy Development: Social Style Training

To provide students with tools to understand and respond to teammates, we teach the Social Style® framework.[11] This framework empowers students to recognize their preferences in interacting with others and vice versa. And, it challenges students to understand how these preferences impact their interactions with others and to adapt their approaches to be more effective and inclusive. We have found that this framework is useful with students because the simple four quadrant grid is approachable, with two axes dividing the domain into four styles: Amiable, Expressive, Driving, and Analytical. After an introduction to the grid and the characteristics of each style, students are usually already able to identify the social style of their instructors. On an entertaining day of class, we separate the room into social styles and ask students to sit in their respective quadrant. Students discuss with others of similar social styles:

- How should someone approach you such that you will be more receptive?
- What does your style find annoying or frustrating about an approach?
- How can your style create tension?

The differences in social styles become immediately apparent as representatives from each style share the answers they have written with a partner, and other parts of the room express surprise and dissenting viewpoints.

In this exercise, we emphasize that no one social style is better or worse than another, but that differences exist and can impact the work on a team as well as the perceptions or assumptions we make of one another based on our own paradigms. We provide training about style flexing and self-reflection. Then, we have students return to their teams, discuss what they learned, and talk through how they would like to be approached if involved in common team scenarios, such as: a team member not completing a deliverable on time; a concern that meetings are not being conducted effectively; a difference of opinion about a design or decision.

We conduct this training six weeks after team formation because it is around this time that students start to come to us with burgeoning concerns about team members or team atmosphere, and they are receptive to the perspectives provided. We refer to the specific social styles on a team when we help that team resolve conflict. We find that it provides an opportunity to discuss those concerns within a conceptual framework which simultaneously validates and challenges each individual's style, and encourages them to adapt to one another to create an effective collective.

Difficult Conversations Training

Finally, we teach the students about the process of resolving conflict through structured dialogue.[12] Whereas the students' first instinct is often to avoid or ignore conflict, in this technique we encourage students to approach situations where there is a perceived conflict with a conversation that will address the situation and work toward a satisfactory outcome. Some students have been taught to use a "sandwich technique" which can lead to mixed messages for the recipient and which can feel disingenuous to the students considering this approach.[13] Instead, we walk them through a process of identifying the relevant facts and context, describing their concerns using "I" statements ("I worry…", "I feel…"), asking if the other person has additional information to provide, making a direct ask for what they hope the outcome might be, and finally working with the other party to look for a mutually agreeable solution. This framework empowers the students to directly and transparently address situations in a constructive manner and to feel prepared to do so.

Advising Approaches

Building on full-class trainings, we work with individual students and teams as situation-specific concerns arise.

Coaching

If a student is facing a conflict with another party (team member(s), director, client, vendor, staff, etc.), we offer to meet with the student for a coaching session. In that meeting, we first determine if we believe it is appropriate for the student to address the situation on their own, then we walk the student through the process of preparing for a "difficult" conversation, as described in the previous section. In keeping with our learning objectives, we make every effort to empower the student to address the situation on their own before we step in or employ additional resources to aid them.

Interventions

Sometimes there are cases where we intervene with a team or group of students to help resolve a conflict. Typically, these cases result when the conflict is of a sensitive nature, when repeated attempts by the student to resolve the conflict have been unsuccessful, or when the situation has expanded beyond an interpersonal conflict between a few individuals. We frame this as the case when "your manager's manager" is called in to help to emphasize the gravity of the situation. In these intervention meetings, we follow a similar procedure to the Difficult Conversations Training. We describe the facts of the situation as we understand them, taking care to fairly represent all those involved. Prior to this conversation we have typically reached out to many parties to gather information (see Contextualization section below). We then ask for additional clarifying information from the parties involved, and have the students propose potential solutions/resolutions. We then spend time with the team/individuals starting to implement these solutions – whether that means having the team work on a white board to derive a plan for workload distribution of remaining tasks, or facilitating a conversation between two parties in conflict. We follow up with all individuals involved following the intervention to learn if additional resources are necessary.

Team Check-in Meetings

Our senior design teams meet weekly with a faculty advisor and we are available for consultation hours twice weekly and by appointment, however we have found that it is valuable to hold periodic scheduled "check-in meetings" with each team. These are typically conducted twice per semester with each team and are 45 minutes. During the check-in meetings, we ask the team about typical update topics: project progress, schedule, budget, workload distribution, and client and faculty advisor relationships. We also ask teams about what they are proud of in the project and what they are most concerned about. By holding these in-person meetings with the full team present, we are often able to identify conflict between team members by observing engagement, body
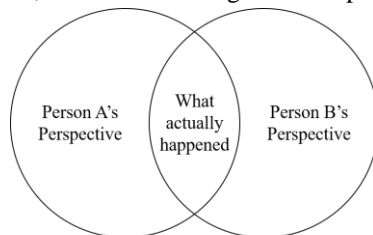
language, and facial expressions. The true check-in is not always in what the students report during these meetings, but what they are clearly trying not to say. By reading these mannerisms, we are able to follow-up with individuals or small groups to identify issues that haven't been brought to light and to work with the students to find productive resolution to their concerns.

Faculty Mentor and Client Involvement

Faculty mentors and clients participate in training meetings at the start of the year. They are asked to model professional behavior. Faculty mentors are taught tools and our philosophy for conflict management. We communicate with directors when conflicts arise so they can support the resolution approach being attempted.

Contextualization

A key component to coaching and moderating conflict resolution is to understand the perspectives of all relevant stakeholders. Our gathering of information produces a "Venn Diagram of Truth", allowing the capstone coordinators to coach/facilitate the conversation toward a specific goal, while maintaining a neutral positioning.

The Venn Diagram of Truth

Peer Feedback

Our peer feedback system provides the opportunity for team members to describe their personal contributions, describe ways each teammate contributes/detracts from the project (with examples), and provide suggestions for individual teammate improvement. The survey is administered four times a year and is only shared with the faculty coordinators and advisors. This assessment is a critical lens into teammate perspectives during conflict.

360 Reviews

Similar to industry practices, a 360 review is employed when a team member reports a concern/grievance. During this process, all team members have an opportunity to provide in-person feedback regarding their perception of the reported complaint. These conversations are framed with the opportunity for personal growth, rather than punitive action. Faculty advisors and staff are also engaged to add viewpoints to the Venn diagram. In special circumstances, clients may be contacted for observations.

Results

In student self-assessment surveys (n=3092), we find a significant increase ($p<0.01$) in student confidence that they will be able to 'resolve conflict in a satisfactory way' from pre- to mid- and post- surveys, indicating that students recognize and acknowledge development in these skills during their capstone experience.

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