



The RED Teams Start Up Session: Leveraging Research with Practice for Success in Academic Change

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At the start of their work for the National Science Foundation's Revolutionizing Engineering Departments (RED) Program (IUSE/Professional Formation of Engineers, NSF 19-614), RED teams face a variety of challenges. Focus group data suggest that teams often have difficulty establishing and following teaming and communication norms [1], [2]. In addition, teams understand the importance of creating a unifying vision for their projects and the value of establishing strategic partnerships, but may be less prepared for the level of effort required to implement these aspects of their projects [3], [4]. Our work with RED teams over the past five years has highlighted the common challenges these teams face at the start, and for that reason, we have developed the RED Start Up Session, a half-day workshop that establishes best practices for RED teams' work and enables early successes in these five year projects.

As the RED Participatory Action Research team (REDPAR)—comprised of individuals from Rose-Hulman Institute of Technology and the University of Washington—we have taken the research data collected as we work with RED teams, as well as the research literature on academic change, and translated it into practical strategies that can benefit RED teams and other changemakers as they embark on their change projects [5]. In the RED Start Up Session (offered for new RED teams preceding the annual RED Consortium Meeting), attendees are introduced to these best practices through interactive sessions that emphasize the goals of the RED program: to design “revolutionary new approaches to engineering education,” focusing on “organizational and cultural change within the departments, involving students, faculty, staff, and industry in rethinking what it means to provide an engineering program” (NSF 19-614).

Organizing the RED Start Up Session

The concept for a Start Up Session emerged from our experiences with the RED project teams, beginning in 2015. In our project, working collaboratively with NSF and with the RED teams, REDPAR has the opportunity to help RED team members learn strategies that could assist them with their projects, what we refer to as “changemaker” strategies. These strategies

are often not a part of a conventional graduate school curriculum, nor are they normally part of faculty development for early or later stage career academics. In order to support these changemakers, the REDPAR team provides a customized support for RED teams through multiple channels: the monthly RED Consortium call (open to all RED team members and addressing a variety of topics that can contribute to team success), the annual RED Consortium Meeting (where all teams can meet, collaborate, and learn from each other), and team consultations provided by members of the REDPAR team. Simultaneously, REDPAR is conducting research in collaboration with the RED teams on the processes of change occurring through each of their respective RED projects. Based on these interactions, REDPAR determined that there was an opportunity to synthesize what we have learned in our work with RED teams and offer those lessons learned to a new cohort of RED teams funded in 2019.

In 2015, when we initiated the REDPAR project, we presented a customized change curriculum during the RED Consortium Meeting as specific workshop sessions during the general meeting. The curriculum was developed by members of the REDPAR team from Rose-Hulman Institute of Technology; these individuals are also facilitators for the Making Academic Change Happen (MACH) Workshop, and they adapted material from the MACH curriculum for the RED Consortium Meeting, as well as for the monthly RED calls and individual consultations [6]. As the number of the RED teams grew (with the most recent Consortium Meeting numbering 21 RED teams and over 100 attendees), we recognized that the curriculum risked being overshadowed by the size and scope of the general meeting. For this reason, we proposed a separate Start Up Session only for new RED teams as they began their projects each year. The first Start Up Session was pilot tested in November 2019 with the two RED teams who were funded in the fall of that year.

Start Up Session Content and Organization

Because our role in the RED Consortium has been so central, we have been able to identify specific opportunities to develop additional customized support for the RED teams. For example, our practice-research collaboration [5] has allowed us to identify the challenges that many RED teams face when they begin their projects. In some instances, teams lacked prior working relationships, or team members lacked awareness of the various members of the

team, the roles they played, and how each role was vital to the success of the team. In addition, many of the teams had trouble building a shared vision [4] and converting that vision into actionable steps. As the research literature on team formation indicates, teams that are not organically formed, but are rather organized by a leader, sometimes struggle to establish parameters for accountability and working norms and conventions [7]. Finally, many of the participants, across all of the teams, also had trouble aligning individual goals with team goals. As we have worked on this project, we have distilled findings from our research into a series of Tip Sheets, each addressing a different aspect of the challenges RED teams face and providing practical strategies that can assist any academic team, whether a RED team or not, to move their change projects forward [8].

To address the above issues, we piloted a Start Up Session for the new award recipients of the NSF RED Program during the 2019 RED Consortium Meeting. The goal of the Start Up Session is to provide a positive foundation as a starting point for recipients of RED grants. The new RED recipients were contacted by members of the REDPAR team and invited to attend a half-day session before the start of the 2019 RED Consortium Meeting. Two teams were funded in the 2019 cycle, and both agreed to attend.

The development of the Start Up Session was based on two important sources of information: the MACH curriculum that is the foundation of the annual MACH workshop (on the campus of Rose-Hulman), and the research data collected in collaboration with the RED teams by REDPAR [6], [9], [10]. The research data suggested that RED teams would benefit from the opportunity to improve team cohesion at the start of their projects, including participating in exercises to understand the role of each team member and the value they add to the team, as well as the opportunity to map their individual goals (such as furthering their research agendas and publishing in their fields) to activities that could enable the team's goals. The sessions also provided activities to help the team draft a shared vision statement that reflects the value of team members, their expertise and strengths. Teams were also encouraged to convert the vision into actionable short-term goals (and wins) for the 1st year of the grant. During the workshop, members of the REDPAR team facilitated and assisted the teams in developing a member participation contract to build individual and team accountability. The schedule of the workshop piloted in November 2019 is provided below:

Agenda

- 1:00 Introductions, Conduct Expectations and/Meeting Norms
- 1:15 Session 1: Getting to know yourself and your team
- 2:45 Session 2: Opportunities and Challenges in Year 1 (panel discussion with current RED team members)
- 3:45 Break
- 4:00 Session 3: Setting goals for Year 1
- 4:30 Session 4: Lightning Talks by new RED teams
- 5:15 Adjourn
- 6:00 RED Welcome Reception for all RED teams

Components of the Start Up Session Curriculum

Each component of the curriculum was designed with two objectives in mind: to allow individuals who were tasked to work on RED projects to begin to work together, build trust, and form a team; and to encourage the new teams to look upon the members of the REDPAR as a resource that could support their work. The first session of the Start Up reflects these specific goals. After helping the members of each team break the ice through a humorous video illustrating the challenges of working on teams, each attendee was asked to reflect in writing on the following prompt:

Why were you invited to be a member of this particular team? Please reflect beyond your expertise, experience, etc. Think about the value you can add to the team, think about how your past work, your academic background, your personal interests can be of use to the team.

After reflecting and writing, the teams were instructed to do the following: “Share things you are comfortable sharing with the team. Judgement free zone!” Based on our experience with previous cohorts of RED teams, we knew that team members might have never worked together before; they may not be co-located on the same campus or in the same department. For this reason, getting to know other team members and valuing their skills and expertise would be an important first step in beginning their projects. In addition to the first reflection, team members were asked to consider the characteristics (i.e., tools techniques, skillsets, knowledge) of their

respective disciplinary fields and how these characteristics can be used to benefit the team. Through the process of self-reflection and discussion, we hoped to emphasize to the teams that they share values, strengths, and expertise that are complementary and useful.

In addition to encouraging team members to get to know each other, REDPAR facilitators designed a session that would allow RED teams to see how team members often operate from distinctly individual concepts of what their projects were designed to accomplish. This stems largely from the fact that the task of developing and writing the RED proposal is frequently the work of two or three individuals, while the construction of the RED team to do the work occurs after the proposal has been submitted and funded. Thus, we addressed the gap in project conceptualization by asking the Start Up Session attendees to write and reflect on the following question:

Based on your interpretation of the RED proposal, what does this project seek to achieve?

From their individual conceptions of the project, we asked the team to collaboratively draft a description of what the project will achieve; we asked that the description be based on input from all team members (not just the proposal writing team), and it should account for the value each team member seeks to add. Team members were also asked to identify individual goals that they had for their work on the RED project, such as a research and/or publication goal or a professional networking goal. The purpose of this work was to align the individual goals of team members with the larger goals of the RED project. Encouraging teams to have this conversation early in the project helps to clarify what individual team members should spend time and effort working on. The work on team formation constituted the first 90 minutes of the workshop. Granted, this time seems short, particularly for as significant a task as team formation. We observed that teams were eager to talk about what brought them together and twice requested more time before moving on to the next activity. Our aim, however, was to introduce teams to strategies and activities that they could later replicate on their own with their larger teams, whenever they need to. We hoped that this would be just the first time they would work on team and goal formation, and we planned to follow up with the new teams regarding their work in this area.

For the second session at the workshop, we asked the attendees to list the opportunities and challenges they anticipated encountering with their RED projects during the first year. We have observed that working on a large and exploratory project like a RED project brings some worries and challenges, especially in the first year when teams are just starting to figure out who the different people on the team are and how they can best work together. Luckily, in our work with RED, we have seen previous cohorts of RED teams through many of the same challenges that first-time attendees anticipated. Our approach to this issue was to encourage sharing knowledge about those challenges across institutional boundaries. Thus, at the workshop, we invited a panel of six RED participants from a cross-section of earlier cohorts. These individuals shared the challenges and opportunities they encountered during their first year and the strategies they developed to deal with those challenges and opportunities. The panel consisted of members of established RED teams who serve in a variety of roles, e.g., disciplinary faculty, project manager, post-doctoral student, principal investigator, etc.

The final segment of the Start Up Session focused on setting a limited number of goals for Year 1, as well as creating an accountability system that would allow for the display of goals and progress that would then be visible to all team members. Rather than try to create a full set of goals and objectives for the entire RED project, we asked teams to focus on what is important for Year 1, with attention paid to one goal for which they could write a list of actions and tactics that would help them to achieve the goal and a consideration of external factors that could impact their achievement of the goal. And since one of our goals as REDPAR was to ensure that the new teams knew about our role in the RED program, we offered a summary of our activities both verbally and in the workbook that was prepared for the Session (see Figure 1).

Figure 1: REDPAR Description

The REDPAR team conducts its work at the intersection of practice and research, and our approach is intended to be a collaborative, self-reflective, and empowering inquiry undertaken by both researchers and participants. REDPAR activities include the following:

Monthly Calls: Through monthly calls that engage all RED teams, REDPAR provides a platform for RED teams to meet, collaborate, and learn from each other.

Consultation: REDPAR also responds to the specific needs of RED teams through individual consultations.

Collaboration: REDPAR seeks out collaborations with RED teams in order to develop workshops and scholarly papers that promote the work of RED and serve the engineering and computer science education communities.

Tip Sheets: In order to share the lessons learned from research with RED teams, REDPAR has innovated the Tip Sheet format that translates research into practical advice that is available to all change agents. Tip Sheets produced thus far treat such topics as Communicating Change, Creating Strategic Partnerships, Creating Shared Vision, and Forming and Developing Teams (available at academicchange.org)

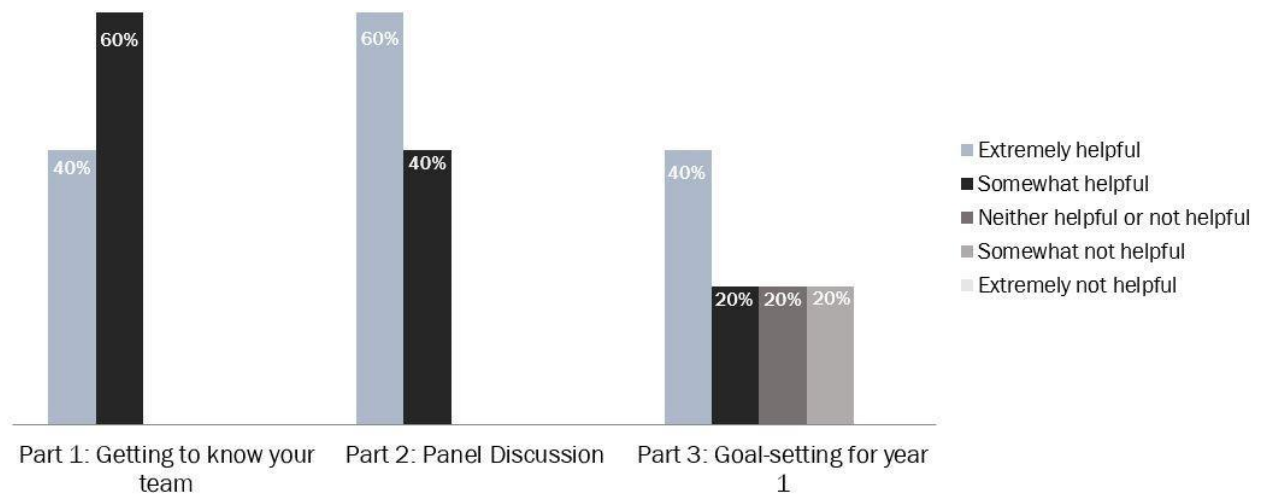
RED Consortium Meeting: REDPAR organizes the annual meeting by circulating the Request for Proposals, scheduling reviews, and determining the final program, as well as working with ASEE on logistics.

Because the RED Consortium Meeting was the first time that RED teams funded in 2019 would meet other RED teams, we asked each of the new RED teams to prepare a Lightning Talk that would serve to introduce themselves and their projects. These talks were resented on the first day of the RED Consortium meeting the following day. In order to give new RED teams the opportunity to rehearse their talks, each team presented their talk at the Start Up Session, with members of the REDPAR team offering constructive feedback. The workshop ended with a reception where RED teams old and new met each other.

Results for Start Up Session Evaluation Survey

After the RED Consortium meeting, REDPAR sent out a survey to all attendees to ask about the meeting's usefulness and impacts. There was a section of the survey devoted to understanding how the Start Up session went. Five of the attendees (nine individuals attended total) responded to the survey. All of the respondents reported that the Start Up session was either extremely helpful (60%) or somewhat helpful (40%). A total of 60% of respondents found the Panel discussion extremely helpful, and 40% of respondents found the "Getting to know your team" extremely helpful. In response to questions about the goal setting session, three of five respondents reported that it was helpful, but two people said that it was either somewhat not helpful or neither helpful or not helpful (see Figure 2).

Figure 2. Helpfulness of Start Up Session Parts



In addition to their feedback on the contents of the sessions, four of the five respondents believed that REDPAR should allocate a full day instead of a half day for future Start Up sessions with new cohorts, suggesting that there was value seen in the session, and teams wished they had more time to do this foundational level-setting work. The open-ended comments echoed this sentiment, with individuals stating that all the sections needed more time, but especially the goal setting and panel discussion.

Conclusion

We see the Start Up Session as an important first step in a RED team establishing an identity as a team and learning how to work effectively together. These steps in team formation are relevant for all groups setting out on a new academic change project. We also see the value of new RED teams learning from the past, through a panel discussion with current RED team members who fill various roles on the teams (e.g., engineering education researcher, project manager, project PI, disciplinary faculty, social scientist, and others). Change project teams beyond those funded through RED also benefit from learning from past change projects. By presenting our findings from the Start Up Session at ASEE, we believe we can contribute to the national conversation regarding change in engineering education as it is evidenced in the RED team's work.