
FORMING AND DEVELOPING TEAMS

A Tip Sheet from Revolutionizing Engineering Departments (RED) Participatory Action Research

Forming a capable and efficient team is a key tactic for change management. In addition, teams require specific development if they are to operate effectively together to accomplish their goals. This tip sheet presents strategies for forming and developing teams, using research findings resulting from focus group discussions and conference calls with the National Science Foundations RED grantees. The quotes from research participants highlight these findings. Contact us at redpar@rose-hulman.edu for additional information.

Bring Together Both the Key Players and Proven Leaders for the Change Project*

The size and scope of many change projects require the formation of a project team. Selecting who should be on this team is a crucial first step. John P. Kotter, author of *Leading Change* (2012), suggests that change agents build a “guiding coalition” for the project, a “powerful force” that has the right members who share a level of trust and a shared objective to accomplish.

➔ **TIP:** Recruit individuals who possess position power on your campus. This power may be reflected in their roles, titles, or other markers. Team members with position power can use their positions to ensure that progress is not stalled or blocked. The team should also consist of proven leaders who have demonstrated that they can drive the change process. The team should be respected by others in the institution so that the teams’ ideas and changes will be taken seriously. Membership in the coalition can also offer those new to major change projects the opportunity to cultivate their experience and build campus credibility.

“I think there's advantages and disadvantages to the team around this table by having the dean and chairs be the PIs. On the one hand, it gives untenured faculty the comfort of knowing that this is a valued activity and if they participate, it will be rewarded and appreciated in their tenure packet. It also means it's really top down.” [RED Project Co-PI]

Invest Time to Cultivate Trust Among Team Members

Teams who are embarking on change projects often get to work quickly to accomplish tasks. They frequently neglect to invest the time needed to cultivate trust among team members who may not have worked together before. A team may find it beneficial to engage in some initial activities that help team members get to know one another, such as a project retreat or workshop. If the activities the team engages in encourage respect and mutual understanding, then you have provided the team opportunities to build trust.

➔ **TIP:** Invest time building trust within the team. Change projects require that team members take risks and invest their own credibility on campus. Team members must trust one another enough to engage in risk-taking, knowing that their team will back them up. Schedule a workshop or project retreat that contributes to the development of the team. It may be the case that team members need to build their group expertise on a particular dimension of the change project. A learning environment like a workshop can allow team members to do that.

“Several of us had not worked together on a research project before, but we’ve been collaborating for a long time. We’ve worked on other projects together. We have immense respect for each other. Even if we disagree, we disagree respectfully.” [RED Project PI]

Recognize and Value the Expertise of Team Members

By bringing together a diverse and credible group of individuals as the guiding coalition, you have the opportunity to leverage a broad array of skills, knowledge, and abilities to accomplish goals. It is important, therefore, to inventory this expertise and to address any gaps that may impact results.

- ➔ **TIP:** Engage individuals who bring a wide range of relevant points of view and skill sets. This will allow the team to make decisions based on the best available practices, information, and data. An inventory of the team members' skills can help identify any gaps that should be addressed early in the project. Taking time to value this expertise explicitly builds respect among team members. Remain open to recognizing gaps in expertise on the team as the project progresses and add team members appropriately.

"I didn't realize how much we needed a project manager until we had one. Our own team had serious issues with communication, with time management, with prioritization, and it's because not a single person on the team has been trained to do that, and it's not necessarily, I mean it's not our strong suit. We're researchers. . . Now that we have a project manager, I'm kind of wondering how could we have ever expected to be successful without one?" [Social Scientist, RED Project Team]

Develop Norms to Facilitate Team Governance and Decision-Making

At the early stages of the change project, it is important to establish team norms, the set of rules for conduct that are mutually agreed to by the members of the team. Jon R. Katzenbach and Douglas K. Smith, authors of "The Discipline of Teams" (2005), suggest that these rules address meeting attendance, discussion, confidentiality, and constructive contributions. By explicitly setting expectations early in the project, you can ensure that the team will not be derailed by misunderstandings and miscommunication.

- ➔ **TIP:** Invite team members to engage in the process of writing a Team Contract, the rules that will govern their conduct while they on the team. These rules clarify how each team member will contribute to the project work, what the decision-making process will be, and how accountability will be assessed. The Team Contract should be revisited periodically throughout the life of the project, with each team member given the opportunity to suggest revisions. This is particularly important when new members of the team are added.

Check out other REDPAR Tip Sheets that can help:

- **Communicating Change**
- **Creating Shared Vision**
- **Creating Strategic Partnerships**

Available at academicchange.org

*Material for this Tip Sheet is drawn from John P. Kotter's *Leading Change* (Boston, MA: Harvard Business Press, 2012), and Jon R. Katzenbach and Douglas K. Smith's "The Discipline of Teams" (Harvard Business Review, July/August 2005).

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RED COMMUNITY OF PRACTICE

A Tip Sheet from Revolutionizing Engineering Departments (RED) Participatory Action Research

The work of academic change makers is often framed as an effort that creates impact on stakeholders, such as students, faculty, and others, in the form of new curricula, revised departmental practices, etc. Additionally, as a result of their on National Science Foundation RED projects, RED project team members also experience a positive impact through their participation in a community of practice (CoP). A community of practice is defined by Wenger as follows:

Communities of practice are groups of people who share a concern or passion for something they do and learn how to do it better as they interact regularly. (Wenger 2011)

More than just a collection of individuals who possess a shared interest, a community of practice is characterized by several distinct features: they are practitioners; they develop a shared repertoire of resources (such as experiences, stories, tools, ways of addressing recurring problems) that represent their shared practice; and they develop their community over time and as a result of sustained interaction (Wenger 2011). This Tip Sheet focuses on the features of the CoP that RED team members engage with, and argues for the benefits of establishing a CoP in an academic change project. This Tip Sheet uses research findings resulting from focus group discussions, conference calls, and a survey with the National Science Foundation RED grantees. Contact us at redpar@rose-hulman.edu for additional information.

As members of the RED Consortium, RED team members interact through regular online discussions and an annual consortium meeting. Through these interactions, RED teams, located across the country and spanning multiple disciplines, learn about the work of other teams and adopt new practices into their own projects. The RED CoP has also resulted in collaborations and partnerships between teams, thus providing opportunities for teams to leverage their work and expand their influence. For example, one such collaboration resulted in a project focused on diversity/equity/inclusion. Finally, members of the RED CoP conduct their interactions as colleagues with a goal of producing mutual benefit for all members. Overall, our analysis of the RED CoP suggests a way to understand the impact of the RED program on the team members who participate in its CoP.

Adoption and Learning through the CoP

The research data collected with RED teams suggests that team members learn through their interactions as a CoP, and their learning can lead to the adoption of innovative practices developed by other teams. In addition, the RED team members can brainstorm ideas in a safe environment where others share similar concerns and interests. As a result, team members can benefit from developing ideas and obtaining feedback prior to implementation of their ideas. The CoP also provides a space that encourages sharing of ideas so other team members can adapt them to their own contexts, thus accelerating idea transfer and reducing workload.

➔ **TIP:** Consider establishing a CoP early in the life of your academic change project and highlight the benefits of a CoP to both prospective team members and potential partners. The CoP provides access to diverse thinkers and individuals with a wide range of experiences from different disciplines.

“In the [RED Consortium meeting] with social scientists, we get to deal with challenges that others are also dealing with using the same concepts. It is nice to brainstorm with others who can respond and say, have you thought of this theory, etc.”

Collaborations and Partnerships

By their very nature, RED projects bring together team members representing a wide range of disciplines. The CoP facilitates collaboration and understanding between individual team members and across RED teams, through opportunities to share resources and advice, potentially leading to improved cross-disciplinary understanding. RED teams also see the importance of strategic partnerships, and they can leverage the CoP in order to connect and build relationships with peers.

➔ **TIP:** Academic change projects often require collaborators and partnerships in order to be successful. The CoP can function as the foundation for these relationships through sharing challenges and highlighting commonalities in each other's work.

"On the last day [of the RED Consortium Meeting], we talked about a special issue in a journal to have different cohorts publish papers on a variety of topics, and this could be one topic: how many of us are approaching the same problem from different angles and perspectives, how are each of use approaching the same general problem, how are we doing different assessments? We could also present it at a conference."

Support and Collegiality within the CoP

Finally, we see important support and collegiality emerging in the context of the RED CoP. The CoP provides benefits that were not specifically expected when we began our work with RED teams, and not all RED teams experience these benefits to the same degree. For the RED teams on the whole, however, the CoP offers important support that can make the work of academic change more manageable and productive. A RED team member interviewed about their CoP provided the following insight:

"There's a lot of brain wealth, for lack of a better phrase, in these groups, and I would absolutely suggest reaching out, you know, there's a lot of expertise to be had. Whether it's through that group or through the social scientists or education individuals that are associated with this group. So I would absolutely say to reach out to your colleagues. I know that I am always very excited when anyone from RED reaches out to me. So I am extending this too, if you're interested, definitely reach out.

Check out other REDPAR Tip Sheets that can help, available at academicchange.org/

- Communicating Change
- Creating Shared Vision
- Creating Strategic Partnerships
- Forming and Developing
- Leadership Succession
- Starting a Change Project

Material for this Tip Sheet is drawn from:

Wenger, E. 2011. Communities of Practice: A Brief Introduction. <http://hdl.handle.net/1794/11736>

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RESOURCE MOBILIZATION IN RED

A Tip Sheet from Revolutionizing Engineering Departments (RED) Participatory Action Research

For members of National Science Foundation Revolutionizing Engineering Departments (RED) teams, their Community of Practice (CoP) provides important support as they develop and implement their change projects. Resource mobilization—an important dimension of the CoP—allows RED teams to access useful strategies that reinforce their change work. Resource mobilization refers to the processes by which a group secures, pools, and directs resources toward desired changes through collective action (Jenkins 1983). Resources may be broadly defined as social ties, specialized skillsets, shared repertoires for action, and legitimacy, as well as financial resources (Edwards and Kane 2014). This Tip Sheet focuses on how resources are mobilized by RED team members in the CoP and provides examples of that mobilization. This tip sheet uses research findings from conference calls with NSF RED grantees. Contact us at grp_redpar@rose-hulman.edu for additional information.

Aggregating Resources

CoPs are ideal sites for compiling resources across RED teams and are especially useful when people learn from the examples of other CoP participants. As RED CoP participants mobilize a variety of resources, their discussions lead to the collection of change assessment strategies, resources to improve team dynamics, and generative discussions on embedding diversity/equity/inclusion (DEI) into their change projects.

➡ **TIP:** Use the examples of other project teams in order to identify and leverage resources that can benefit your own project.

"I took notes. I was very impressed with how everyone is measuring change. There's such a broad array of tools. Lots of measuring enrollment and demographics, tracking that. Some groups are collecting baseline data. Lots of focus groups, students or faculty." RED Project Coordinator

"I've learned a lot from everything that REDPAR members have done with getting resources together, so I'm gathering resources beyond sharing my personal knowledge." RED team member

Creating Shared Understandings

In addition to their usefulness as sites for compiling resources, CoPs like RED allow for the formulation of shared understandings of the impediments to change and solutions that can help participants address issues. Since higher education organizations have unique impediments to change, the CoP provides space for participants to discuss issues and create solutions (Kezar 2014).

➡ **TIP:** Given that many impediments to academic change are similar yet distinct challenges across different contexts, use your CoP as a sounding board for proposed changes and a way to identify resources that can support collaboration on possible solutions.

"I appreciate any opportunity to share the ideas we have. A lot of us have come up with innovative new practices and technology and don't have enough time to transfer that technology. It's great that we can then exchange this info and others can adapt it... actually establish meetings to transfer ideas... I appreciate any time we get for moving technology from one context to another." RED team senior personnel

Reflection on Team Dynamics

Finally, CoPs can offer a space for RED teams to reflect on and discuss team dynamics; understanding these dynamics is itself a resource that can be mobilized. Cross-disciplinary teams, like those who work on RED projects, may experience differences in expertise and background that can create communication challenges about the work to be done. The CoP provides a dedicated space for teams to discuss team dynamics and resolve differences. When participants discuss team dynamics and role-specific differences in a dedicated space, they arrive at an enhanced understanding of the unique skillset that each team member brings to the project.

➡ **TIP:** CoPs can provide a productive environment in which to identify team members' contributions and increase understanding of diverse perspectives.

"There's been a lot of time and effort just spent on getting people to understand each other in the room, our theoretical background and assumptions, and even among the engineering education researchers on our team, people are coming with different theoretical assumptions. So we've spent quite a bit of time, very worthwhile time, coming to a common understanding. There is one person taking the lead and we have conversation and try to come to some consensus and then the lead author takes the lead from there in terms of how we are approaching it." RED Team social scientist

By their very nature, RED projects bring together team members representing a wide range of disciplines. The CoP facilitates collaboration and understanding between individual team members and across RED teams, through opportunities to share resources and advice, potentially leading to improved cross-disciplinary understanding. RED teams also see the importance of strategic partnerships, and they can leverage the CoP in order to connect and build relationships with peers.

Check out other REDPAR Tip Sheets that can help, available at academicchange.org and <http://depts.washington.edu/cerse/research/current-research/>

- Communicating Change
- Communities of Practice
- Creating Shared Vision
- Creating Strategic Partnerships
- Forming and Developing Teams
- Leadership Succession
- Starting a Change Project

Material for this Tip Sheet is drawn from:

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Jenkins, J. C.. 1983. "Resource mobilization theory and the study of social movements." *Annual Review of Sociology* 9 (1): 527-553.

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NAVIGATING COMMON OBSTACLES TO CHANGE IN HIGHER EDUCATION

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Overview

Since the inception of the NSF Revolutionizing Engineering Departments (RED) Program in 2015, RED teams have worked to implement significant changes in engineering education at their institutions. Along the way, they have encountered numerous obstacles, ranging from changes in institutional and/or project leadership and support, to lack of policies and procedures to support the proposed changes, to lack of buy-in from colleagues and students. This Tip Sheet identifies some of the common obstacles that RED teams have experienced while advancing their change projects.

The experience of the RED teams suggests that change agents should anticipate some of the obstacles proactively, but remain flexible to respond to unanticipated challenges, and use this process to identify new opportunities for growth along the way. Additionally, change agents should consider obstacles from multiple perspectives as this can help them obtain a deeper understanding of how different organizational elements interact, and how proposed changes can impact or be impacted by the institution (Vuori, 2018).

Obstacles including rules, goals, policies, and technologies

The research data collected with RED teams suggests that the teams are encountering many obstacles related to existing institutional structures, policies, and processes which inhibit or prolong the change process. Examples of those include, among others, processes for changing curricula involve too many stakeholders

and take too long; existing promotion and tenure processes don't support teaching innovation with junior faculty; frequent changes in higher-level administration often have direct impact on academic change projects as teams can lose advocates and have to rebuild support from administration.

TIP: When encouraging others to support a change effort, consider whether the existing institutional processes and policies make your request reasonable. For example, are existing promotion and tenure processes or reward structures designed to encourage innovation? If not, and if the support of specific groups is critical to the success of your project, consider building partnerships with those who have the power to influence changes to the procedures and policies that currently act as obstacles.

This Tip Sheet uses research findings resulting from RED conference calls and a group working session with 16 RED teams during the 2023 RED Consortium Meeting. Contact us at redpar@rose-hulman.edu for additional information.

Obstacles involving needs, skills & relationships of the people in organization

RED teams commonly face obstacles related to relationship building and people management. For example, a lack of collegiality and collaboration can make the process of building strategic relationships harder, which can inhibit change across departments. Another obstacle is a lack of leadership and/or management training for change agents who want to lead others in a large change effort.

TIP: Spend time to understand the people who will be impacted by your project, within and outside of your team. Understand what motivates them, what causes them concern, and what they need to be successful. You can formulate better strategies for obtaining their support and trust if you understand what the underlying issues are.

"Yeah, I just wanted to offer some encouragement to everyone and I know how difficult this can be especially when you realize that there are pressure points from this side of STEM. If it can help anyone, it was part of my job to set up meetings - just listening meetings, nothing earth shattering, just to sit down with some lecturers from chemistry, math and physics. That's what I did last semester and it was so helpful. You get to actually meet the lecturer and you see the way they teach these courses and ask them about their approaches. The most important thing I learned was what they found to be their most difficult challenge in helping students succeed. It was really invaluable feedback ..." (RED project coordinator)

Obstacles involving cultural aspects of an organization

Obstacles related to institutional culture and values can be the most difficult to overcome. RED teams have had to manage many obstacles in their attempts to change the culture of their unit or institution, including managing different understandings of how things should be done, or what is valued across different units in an institution.

TIP: Consider and articulate the cultural norms and values that shape the decisions and practices of those around you who will be impacted by your change. Seek ways to address deep cultural shifts through the change making process.

"This is something that our team has worked on continuously since the beginning of the project. There's been a lot of time and effort just spent on getting people to understand each other in the room, our theoretical background and assumptions, and in terms of our, even among the engineering education researchers on our team, people are coming with different theoretical assumptions. So we've spent quite a bit of time, very worthwhile time, coming to a common understanding. And dealt with it by, on different projects, there is one person taking the lead and we have conversations and try to come to some consensus and then the lead author takes the lead from there in terms of how we are approaching it." (RED project social scientist)

References:

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Vuori, J. (2018) Understanding academic leadership using the four-frame model. In Pekkola, E., Kivistö, J., Kohtamäki, V., Cai, Y. & Lyytinen, A (eds.): Theoretical and Methodological Perspectives on Higher Education Management and Transformation. Tampere : Tampere University Press.

A Tip Sheet from Revolutionizing Engineering Departments (RED) Participatory Action Research

BUILDING PSYCHOLOGICAL SAFETY & CONFLICT RESOLUTION CAPACITY TO ENHANCE TEAM COHESION

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Overview

Since 2015, the NSF Revolutionizing Engineering Departments (RED) teams have worked to implement significant changes in engineering education by relying on the diverse skills of their interdisciplinary team members who represent various institutional roles. This Tip Sheet presents some of the strategies that RED teams have utilized to ensure psychological safety and build conflict resolution capacity for their team members. We utilize the definition by Edmondson (1999) that psychological safety is a shared belief held by team members that others on the team will not “embarrass, reject, or punish someone for speaking up”, and additionally recognize that in the same situation different group members might “perceive the same moment, in the same context, as having different degrees of risk and thus have different needs for psychological safety” (Wanless, 2016). Inclusive and efficient teams are key to generating innovative, cross-cutting, and sustainable changes in higher education, and research suggests that for highest success, high-performing teams must actively foster psychological safety among the team members (Ruiz Ulloa & Adams, 2004). It’s important to utilize all three strategies presented in this Tip Sheet to consistently reevaluate and reinforce psychological safety for teams.

Strategy 1: Develop and use an inclusive meeting structure

The data collected with RED teams suggests that teams should consistently place importance on planning and implementing a meeting structure that is governed by clear and agreed-upon meeting norms. Further, these meeting norms should be consistently reinforced by all team members.

TIP: During a meeting, spend time to address all concerns and questions before moving onto another discussion point and before making decisions. When necessary due to a time constraint, the team should collectively prioritize which agenda items to address.

This Tip Sheet uses data from RED conference calls and a group working session with 12 RED teams during the 2024 RED Consortium Meeting. Contact us at redpar@rose-hulman.edu for additional information.

TIP: Consider developing a meeting agenda in a collaborative manner and sharing it with the entire team before the meeting. The agenda should ensure that during the meeting every team member has an opportunity to contribute to discussions (e.g., round-robin style of idea/feedback generation). Consider how you might engage those who cannot be physically present in the meeting, to allow their voices to be heard.

“...I just love that [...] when I'm in the meetings, nobody is begrudging the amount of time it takes to try to work through the issues. Like some of the meetings that I'm in in other contexts, there's this sense of we should do all of this empathy perspective taking, but we should be able to do it in three minutes and move on to the next agenda item.” [RED team educational researcher]

Strategy 2: Empower project leaders to actively manage team environments

Project leaders can have an instrumental role in developing and maintaining psychologically safe environments where team members feel valued for their insights, empowered to bring up concerns, and able to constructively discuss potentially opposing views.

TIP: Leaders should be intentional about developing a process for integrating new team members into existing groups. Leaders should provide new team members with the resources and guidance to help them navigate tacitly understood group norms and rules.

TIP: Team leaders should spend time meeting with individual team members outside of regular group meetings to compile diverse perspectives and insights, and, when necessary, schedule separate group meetings to openly discuss prior contentious issues before moving onto new topics.

"So, when I think about what's going on in the team meetings, it's like at the moment it never gets to conflict because there are things like a lot of perspective taking that's going on. So how would so-and-so handle this? How might this be experienced? So, that's when [the group's social scientist] is helping the team see how different people might react. [...] Part of that has been a certain amount of empathy. Trying to appreciate why somebody would be reacting and not quickly saying resistance is bad. But more like, it might be natural for that person to be resistant. And being empathetic and then figuring out how to address it. " [RED team educational researcher]

Strategy 3: Build trust and respect with all team members

Every member of a team has a responsibility to reinforce respectful practices so that everyone can speak up without being punished, embarrassed, or rejected for their opinions. In psychologically safe environments team members tend to speak up and share knowledge more readily, ask for help, provide constructive feedback to others, learn from mistakes, and feel a greater sense of belonging to a group (Wanless, 2016).

TIP: Professional training for team members and/or professional facilitation of meetings by an external facilitator can be critical in a team's ability to manage crucial conversations, and to alleviate power dynamic issues.

TIP: Team members should practice exhibiting a curiosity mindset and asking questions about others' perspectives, establishing commitments to honor agreed upon ways of interacting and collaborating, and learning ways to provide positive and constructive feedback and connect feedback to a team's shared vision.

"So patience, and then a willingness to learn, kind of a curiosity about the different issues. And so all of that, it never seems to get to conflict anymore because some of these other processes are crafting circumstances that then are really constructive." [RED team educational researcher]

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Ruiz Ulloa, B. C. and Adams, S. G. (2004). Attitude Toward Teamwork and Effective Teaming. *Team Performance Management*, Vol. 10, No. 7/8, pp. 145-151.

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