

# Grassroots teams for academic departments: a new way to understand culture and change

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**Abstract**—This full paper in the research-to-practice category describes a departmental structure for change organized and executed as part of a REvolutionizing engineering and computer science Departments (RED) grant from the National Science Foundation (NSF). The recent engineering education literature provides many conceptual frameworks for thinking about change in academic organizations, but comparatively few case studies of how departmental cultural change is operationalized both inside and beyond the classroom. Our approach to change was to organize “grassroots teams” of students, faculty, and staff to tackle problems and challenges of recognized importance to the department. This paper details a number of key features of these grassroots teams, including: membership, training, leadership, problem scoping, facilitation, goal setting, formative and summative evaluations, and the outcomes of the teams work.

The grassroots teams were organized according to several operating principles: (1) optimal team size is 6-8 people, and optimal project duration is around one semester; (2) to the extent possible, each team should have students, faculty, and staff representation; (3) teams generally follow our change model to complete their work; (4) all teams should strive for equity of voice, meaning that student and staff voices are equal to faculty voices; (5) the changes to be made did not require permission (i.e., approval from a curriculum committee or other formal entity; or the team members implicitly already had permission for change as a result of their job role); and (6) the teams should focus on student outcomes we care about.

Our results refined our understanding of how change happens (or in some cases, does not happen) in our organization, with fascinating implications for ongoing and future efforts. The existence of these teams, and their mission around progressive change in the department, operated in tension with the prevailing attitudes about change in the department (“we tried that before, and it didn’t work”). Not every change effort was successful.

The feedback from participants was nearly unanimous. They appreciated the structured and well-scoped nature of the projects. They especially welcomed the process we developed to facilitate change, which was very different from the usual committee structures in which they were used to working. And they felt excited to see that change was possible. Our specific grassroots team implementation will undoubtedly not work in all academic environments. Local context matters and some changes to our approach will be appropriate in each different setting. However, we believe the approach outlined in this paper provides a flexible platform on which to build grassroots teams in other units of our university or at other institutions.

## I. INTRODUCTION

Discussion of change in higher education currently enjoys a prominent place in both the scholarly literature [1], [2] and popular education press (i.e., the *Chronicle*). In engineering education, much of the change centers on the use of evidence-based pedagogies and assessments that are known to improve student learning (for instance, the large body of work on using concept inventory assessments to evaluate active learning or other innovative pedagogical approaches, including [3]), academic performance [4], or retention [5]. Active and/or blended learning, for instance, show substantial benefits for students across many settings and with different student populations.

Nonetheless, other types of change in higher education are also sorely needed and fall into just a few categories: (i) co-curricular programmatic changes, especially those that introduce experiential learning or industry engagement with senior design; (ii) student support changes, including tutoring or other academic support structures and peer or other mentoring programs; and (iii) policy changes, including those around admission practices, academic standards policies, or the flexibility in the general requirements of an academic program.

A key question emerges: who conceives of, designs, and implements potential changes in an academic organization (who “owns” the change)? Moreover, what structures are in place in a typical academic department to support change by giving people the responsibility, authority, and accountability for change? This paper reports on preliminary work related to this research question about change: in what ways can a grassroots team implement change in an academic organization, and can such a team (when guided by a theory of change) create the kinds of agile networks required to quickly change what they care about? The paper explains our design, implementation, and initial evaluation of a change structure into which people inserted their energy and passion for change. The structure of the grassroots team is inspired by both the literature and past practice-oriented guidelines for change.

## II. THEORY OF CHANGE

### A. How organizations might change

Henderson's four-quadrant model [2], [6], [7] is widely cited in the engineering education literature as a useful framework for thinking about change. The literature on change in engineering education resoundingly supports the notion of emergent outcomes, developed as part of a democratic process. Henderson's work clearly shows that broad-scale change processes in highly-siloed academic organizations require development of a shared vision among the community members with deliberate consideration of emotion and trust (as echoed in *A Whole New Engineer* [8]). This idea is illustrated by Finelli et al. [9], Besterfield-Sacre et al. [1], and Merton et al. [10], who leverage Henderson's model to explain successful change processes in academic units. Emotion and trust again emerge as key regulators of change. In a similar vein, Briody [11] generalized change processes across organizations in three industries, and concluded that 5 specific actions (all related to emotion and trust) are required: collaboration, work practice change, leadership buy-in, structural change, and evidence of benefit.

In this project, we use Strategic Doing (SD), which provides a networked framework for change. Strategic Doing [12], [13] advocates change vectors aligned with appreciative processes, open participation among community members, and the gentle guiding hand of leadership. SD advocates networks with a tight core and porous boundaries. The tight core consists of community members with strong bonds of trust, while the porous boundaries allow the flow of new ideas and people into and out of the network. Most importantly, outcomes from a SD process—the goals and the strategy itself—are emergent rather than pre-supposed, consistent with Henderson's model. The SD process focuses conversations among participants that (i) guide them toward actions with clear, measurable outcomes, and (ii) enable adjustments as participants learn by doing through experimentation. Strategic Doing is a specific application of complexity leadership theory (CLT, [14]) calibrated for networked, rather than hierarchical, organizations. Our work couples Henderson's model for understanding change to a specific set of actions for implementing change in networked organizations.

In practice, SD uses a specific process to lead teams from a "framing question" (a high-level question that expresses the team's aspiration) to a "pathfinder project", which is a modestly-scoped but meaningful project that moves the team along the path to answering their framing question. Once a pathfinder project is identified, team members distribute tasks in support of that project, set deadlines for completion of those tasks, and set a time, date, and location for the next team gathering. Accountability to other team members for completion of tasks—on time and with high quality—builds trust and confidence within the team that the goal can be accomplished. Teams gather again for a "30/30" meeting, at which progress from the previous 30 days is reviewed, and plans for the next 30 days are established. Depending upon

the team's cadence and progress, it might be more appropriate to meet for a 7/7 or 14/14. A full accounting of SD processes can be found elsewhere [15].

Strategic Doing might, at first glance, appear to be in tension with hierarchical academic organizations that have Deans, Department Heads, and potentially area leaders within departments. While the organization studied here (an academic department) is hierarchical, the hierarchy is established not so much by an individual's organizational chart position as by seniority on the faculty. Despite this implicit hierarchy, an SD-driven, networked approach to change is a reasonable choice because responsibility for curriculum and programs within the department is highly distributed across a large number of faculty and staff members. The locus of change for these projects, discussed below, falls squarely in areas that do not require permission—areas in which change agents already have authority to make changes.

### B. How organizations do not change

All organizations have an immune system that attacks change through a combination of personal power dynamics, policies, and business practices [16]. In academic organizations, this immune response functions as a filter on innovation that suppresses growth and penetration of innovative practices. Only the weakest innovations survive to the department level (where they need the largest number of supporters of change); as the innovation attempts to spread, time constraints, politics, policies, emotion, and trust create implementation barriers and result in largely incremental changes. We define this roll-off region as the 'borderland'—the interface between the innovators and the department as a whole and the nexus of a cultural clash. In most academic departments, this borderland is controlled by faculty who are not innovators, supported by existing policies regarding approval and change. Diffusion across a borderland has been well studied (e.g., Rogers [17]). When coupled with a theory of change [6], as well as the tools of change [12], we believe control of the borderland can be shifted to the innovators, resulting in more significant innovation and participation. For this reason, we embarked upon this grassroots team project, in an attempt to empower individuals to pursue projects of importance to them and the department's students.

## III. GRASSROOTS TEAMS

Our conception of the grassroots teams in this research rested on a few basic principles, described in Table I. These guidelines are largely derived from our theory of change, Strategic Doing, although several of them are shared by other teaming (e.g., CATME [18]) and collaboration frameworks [19]. Management and facilitation of these teams were initially conceived to be consistent with SD principles (Guidelines 3 and 4 in Table I), in which trained team members would assume leadership roles on the team after an initial "external" facilitation phase (where the external facilitators have been trained as SD "guides"). This specific feature of the teams

TABLE I  
GUIDELINES FOR GRASSROOTS TEAMS.

Guideline
1. optimal team size: 6-8 people; optimal project duration: about one semester
2. teams should include students, staff, and faculty whenever possible and feasible
3. teams should employ SD processes, particularly around team leadership, which should be (i) distributed, and (ii) not aligned with other hierarchies or power structures of team members (e.g.: the department head should not lead a team)
4. team gatherings should emphasize psychological safety and equity of voice
5. teams should focus on making changes for which they do not have to ask for permission
6. teams should focus on student outcomes about which we care

evolved over time as we accumulated experience with grassroots teams in our organization, and this evolution is described below.

Our goal with Guideline 1 was to balance diversity of ideas against team size. The Pathways to Innovation project (a previous SD-oriented change project [20]) revealed that 6-8 team members seemed optimal for academic projects, although appropriately-scoped projects can be successfully executed with as few as 3 team members. Guideline 2 recommends that teams be composed of key department stakeholders whose voices could help shape new initiatives or solutions to problems. In particular, student and staff voices are, in our estimation, crucial and often under-valued voices in academic decision making. Comprehensive and student-centered changes can best be made when all stakeholders' voices are heard. Guideline 3 rejected the idea of positional leadership and embraced the notion that all members of the organization can be leaders on a grassroots team. Guideline 4 undergirded the others by ensuring that diverse voices can be heard and valued within team discussions, the literature for which continues to grow [18], [19], [21].

These first four guidelines also enable teams to exist and perform in Henderson's emergent, democratic space on the four-quadrant diagram. The best solutions will emerge from engaged discussions among stakeholders, using a democratic (i.e., equity-driven) process that rejects title-driven hierarchies and values the contributions of all team members.

The fifth Guideline was perhaps the most important for initiation of the grassroots team program. Teams were encouraged to pursue changes for which they *did not need to ask for permission*, or for which they already implicitly had permission by virtue of their role in the organization. The majority of faculty and staff in academic departments—and perhaps the large majority—have experienced the soul-crushing frustration of investing time in a sincere effort to change something, only to have that effort eventually quashed by a curriculum committee, a department head, or a dean. We entered into this research project about change with the clear vision that teams should only work on issues that they

could directly affect. This perspective placed constraints on the specific kinds of change that would be possible (large curriculum changes were precluded), as well as who had to be present on the teams (changes requiring, say, the Dean or the Registrar on the team were not pursued), and the scope of the change (changes that would require several years to evaluate impact were also not options for these teams). We give examples of projects meeting these criteria later in the paper, but the key point here is that we proactively shaped each project to be doable without a long series of reviews/approvals from various committees.

Guideline 5 also aligned with the institutional culture in which this project was executed. The organization has a strong hierarchy and faculty-centric model for executing the department's mission. Rigid organizational structures with checks and balances all connect to strengthen the existing departmental immune system and suppress change by allowing too many people to review and veto proposals for innovation. The institutional immune system provides too many avenues to stop innovation and preserve the status quo. Guideline 5 was an intentional effort to achieve two objectives: (i) to circumvent the people and policies who filter innovation, and (ii) to prove to innovators (and the organization as a whole) that change can happen, even within a department that routinely resists change.

Each grassroots team worked toward delivering “change experiments”, which stemmed directly from their framing question and pathfinder project. Each change experiment was designed to: (i) be doable on a relatively short time scale, (ii) focus on a student outcome about which we care, (iii) have a measurable outcome, and (iv) have a lightweight evaluation plan to provide useful feedback to the grassroots team so that they could make plans for future iterations of the experiment as necessary. Almost all change experiments were focused on NSF's Professional Formation of Engineers (PFE) outcomes, which encompass the non-technical competencies (teamwork, communication, etc.) so critical for practicing engineers as well as the deep technical skills.

#### IV. METHODS

This NSF-funded research project about change was organized in such a way that the grassroots team concept was testable. As such, we collected a variety of data while creating grassroots teams and supporting their work. This data collection focused on team inception, initial work, and preliminary project outcomes for each team. In general, the data collection extended through at least one semester of each team's work, and in some cases longer. We also acknowledge that some teams failed quickly, so data collection for those teams lasted only as long as the team was a functional unit. This section reviews team formation practices, the role of SD and project facilitation, data collection and analysis, and team performance metrics.

### A. Team recruitment and formation

Potential team focus areas were solicited from department members, mostly faculty, via a series of individual and small group conversations, as well as a discussion at the annual faculty retreat. The faculty are the long-term residents of the department—certainly much longer than current students and longer than most staff. Staff and student perspectives were gathered, but our view was that faculty (who hold the most departmental power) had to be involved in defining the opportunities for change. Opportunities to participate on grassroots teams organized around the ideas were offered to faculty, staff, and students. For faculty and staff, both broadcast (mass email) and individual invitations were extended based upon known or suspected interest or skillset. For instance, the staff person responsible for the co-op program in the department was intentionally and specifically encouraged to participate on a grassroots team, and forming the co-op team was actually her idea. Without her participation, such a team would not have been possible because her job role positions her as the ‘owner’ of the co-op program. For students, we worked through the network of student organizations within the department (professional societies and interest groups) to recruit potential participants, in addition to recruitment via existing team members as well (for example, faculty and staff inviting students they knew to join a team). It was not always possible to attract interested people from each departmental constituency (students, faculty, staff) to each team.

### B. Role of SD and a facilitator

Each team was initially moderated by a facilitator applying the guidelines in Table I, as well as basic principles of what we have come to call “agile facilitation” (AF), and used Strategic Doing practices. We choose the word “agile” to describe this style because it is reminiscent of agile software development [22]. In brief, we conceive of AF as responsive to changes in project needs, focused on collaboration, and committed to lightweight but meaningful documentation of team activities and outcomes.

The facilitators from our research team were trained in SD principles and well positioned to lead grassroots teams. The intention was always to transition team facilitation to members of the team themselves, thereby enabling the team to function autonomously, without the support of our research team. SD advocates for distributed leadership of at least three people on each grassroots team: a knowledge keeper (who takes notes), a time keeper (who keeps team gatherings on task), and a table guide (who steers the conversations toward the team’s stated goal). In the initial team gatherings, the facilitator from our research team played all three roles on Fall 2017 teams. This vision of transitioning the teams toward managing their own activities was only partially met, for reasons that are discussed later.

The SD framework was implemented in the form of a step-by-step, fillable workbook given to each participant. The facilitator, a member of our research team, guided each team through the project development process while applying the

agile principles, and focusing especially on the equity of voice guideline. The facilitator’s role was to guide the team’s work in the direction it sought to go, keep structure and efficiency to the gatherings, gently nudge digressions back to the focus the team’s efforts, and instill a relentlessly positive sense of optimism in the team members. The facilitator ensured, at the end of each gathering, that each team member was ready for their next 30/30 by forcing commitment to a time and date for the next gathering, and assigning each team member a task doable in that time frame. Throughout the meeting, the facilitator also took copious notes on a shared document.

### C. Data collection

Grassroots team members consented to participate in this research and agreed to furnish data about team functioning, performance, and productivity. Table II illustrates the types of data collected and the intervals at which they were collected.

The anthropological observations require more explanation. We recruited undergraduate and graduate students in anthropology to observe the grassroots teams in action and record their observations for later analysis. Observers were trained by one of the anthropologists on our team to be sensitive to and aware of the team guidelines described above. Observations occurred in pairs, with one observer focused on interpersonal dynamics (equity of voice, hierarchies, body language) and the other focused on team processes and fidelity to SD principles. These rich, hand-written notes and observations were transcribed by the observers via review and reflection into a set of observation transcripts suitable for analysis.

### D. Data Analysis

Data analysis continues for all categories of data shown in Table II. The goals of the data analysis, and the respective data sources and analysis techniques, are shown in Table III. Appropriate analysis techniques have been chosen based upon the specific research question and the data collected. These techniques span both qualitative and quantitative spaces.

## V. RESULTS

In this section we briefly review the over-arching themes about the first set of grassroots teams, whose work has spanned the time frame March 2017 - May 2018. This paper does not include in-depth analysis of the research data, and instead describes in narrative form the evolution of the teams, their work, and the successes and challenges they faced.

### A. Team composition

Based upon many conversations and brainstorming sessions with various department constituents, our research team assembled a list of about a dozen priority areas that emerged as potential foci of change projects. Team members were recruited from among the faculty, staff, and students in our academic unit (and in some cases, beyond the unit) based upon their interest in contributing to one of those projects. The basic requirement for team membership was to commit no more than a few hours per month to team activities

TABLE II  
DATA COLLECTED FROM GRASSROOTS TEAMS.

Data collected	Description
team artifacts	SD workbooks, team meeting notes, project-related team outputs (including documents and data collected as part of their project)
anthropological observations	observer notes from team gatherings
post-experience survey	survey data collected after the team's work was completed
post-experience interviews	interviews with grassroots team participants about their experiences
team logistical details	level of preparation of team members for 30/30 meetings, meeting attendance, and number of cancelled meetings
team performance metrics	evidence generated by the team about the implementation of their pathfinder project, with specific measurable outcomes defined by the team

TABLE III  
RESEARCH GOALS AND DATA ANALYSIS APPROACHES.

Research goal	Data analysis approaches
understand the role of SD and facilitation in team performance	team artifacts (especially meeting notes and SD workbooks) and anthropological observations, analyzed by coding for themes including: team dynamics, equity of voice, and fidelity to SD processes
characterize team performance and outcomes	team artifacts (data collected, pilot implementation data), logistical details, and performance metrics, analyzed using either descriptive statistics (for quantitative data) or thematic analysis (for qualitative data)
assess team satisfaction with process and change	post-experience surveys and interviews (including efficiency and productivity), examined using descriptive statistics and thematic analysis, respectively
quantify team efficiency and productivity	team artifacts (SD workbooks), meeting notes, logistics data, and post-experience interviews

(one 30/30 or two 14/14 meetings, plus modest work in between meetings). Spring 2017 teams included about 30 team members (almost entirely faculty) focused on four projects, while Fall 2017 teams contained over 50 team members (24 faculty, 18 staff, 9 students) focused on nine change projects (plus three more ‘implementation’ projects, as described later). There was a sharp distinction between Spring and Fall 2017 team dynamics and performance, with Spring teams being largely unsuccessful in launching change experiments and Fall teams being much more successful. We believe two key drivers of this improvement were: (i) participation of staff and students on the teams, and (ii) the quality and quantity of external facilitation by our research team, as discussed below.

### B. Team projects and PFE focus areas

Across the two semesters of team formation, grassroots teams pursued nine change projects that required significant visioning and design, and that used SD principles to help guide their work. Of the three change project teams formed in Spring 2017, all three failed to produce any meaningful change experiments related to PFEs. In Fall 2017, five of the seven grassroots teams produced meaningful experiments. The Fall 2017 teams collectively produced a total of 24 change experiments spanning the PFE outcomes of teamwork, communications, professional skills, global competency, and mentoring. Of the 50+ team members from Fall 2017, 30 were considered to be “active” based on their meeting attendance and general contributions to the work of the team. These

change projects largely focused on the PFE outcomes of *communication* and *teamwork skills*.

For example, one change project team from Fall 2017 focused on how to make the department’s co-op program more flexible (and therefore more attractive) for students. The expectation was that a more flexible program would attract more students who would develop their professional skills through work assignments, therefore enhancing their general PFE outcomes. This team was predominantly composed of staff responsible for the co-op program (including staff outside of our academic unit) and students who experienced the co-op program. They worked collaboratively with several key employers to identify specific elements of the current program that students perceived to be inflexible. They discovered that the duration of the program (i.e., the required number of work assignments) and constraints on available work assignments (i.e., the restriction to work for the same employer for all work assignments) were significant negative indicators for students. This grassroots team focused on easing these constraints, in conjunction with the group of employers, so that students could enjoy increased flexibility while employers still had reliable access to a highly-qualified student workforce. This evolved co-op program is being piloted with students and employers at the time of this writing.

In addition to the nine change projects in Fall 2017, there were three implementation projects that were well-fleshed-out ideas simply in need of an implementation plan. One example is the introduction of CATME [18] for routine use in the senior design course in the department. In our research

team's discussion with faculty in the department, there was reasonably widespread support for deployment of CATME as a team management and evaluation tool, although there was an expressed hesitation about learning how to use a new software tool. CATME is a mature product used around the world; this project required very little "design" and instead demanded an implementation plan. One of our research team (himself a frequent CATME user) worked closely with senior design faculty to mentor them in the use of CATME. The task entailed training the faculty on the platform and teaching them how to set up team formation and evaluations in the CATME system, as well as interpreting CATME data. These implementation projects targeted the professional skills of *communication* and *teamwork*.

### C. SD and the role of "external" facilitation

Earlier, we described how our initial conception of team facilitation evolved over time, as we gained experience working with grassroots teams. The initial goal was to provide trained facilitation to each team for only the first few (< 3) team meetings, with leadership and facilitation transitioned to members of the teams. We learned in Spring 2017 that this plan was a failure, despite our best efforts to train team members in SD principles and the guidelines for team function established in Table I.

In Fall 2017, we shifted to a hands-on "agile" facilitation by two members of our research team, who took on the three roles described above for each of the teams they facilitated. The Fall 2017 teams were facilitated for at least one semester, so that the facilitators could role-model how effective team facilitation could be achieved. Some time in Spring 2018, our research team members stepped away from active facilitation, with the expectation that their roles would be taken up by team members themselves. To some extent, this transition happened, although the team effectiveness was lower, as evidenced by meeting frequency, number of cancelled meetings, and team output. Nonetheless, we learned an important lesson, reinforced by other evidence described below, about how to manage such grassroots teams for optimal performance.

Our research team also took responsibility for managing team and meeting logistics, which itself was a significant task. One member of our research team, whose experiences are documented in a separate paper [23], assumed the logistical support role of reserving meeting rooms and scheduling meetings for each team. We learned that our institution's data systems work poorly for these sorts of tasks, and that faculty do not always participate in our institution's calendar system. It became very difficult to efficiently schedule a meeting when participant calendars are not up to date and/or accessible to the person scheduling the meetings. The efficiency of this part of the project was unacceptably low, and a significant amount of time was spent—especially at the team formation and initiation phase—attending to the scheduling and logistics of the meeting. Once the teams established their cadence (30/30 or 14/14), they were able to hold a time on their calendars and obtain a recurring room reservation as appropriate, but in the start-up

phase this turned out to be a massive—and rather unexpected—effort for our team.

We learned through our interviews with team members that they generally valued and appreciated the external facilitation by our team and *strongly preferred it over internal facilitation by team members*. Their rationale generally fell into one or more of these categories: (i) they did not feel they possessed the skillset to be an effective facilitator, (ii) they prefer external facilitation because it freed their mind to focus on the change itself, or (iii) they believed that an external facilitator could be a neutral broker who maintains meeting and team efficiency without driving the project in a particular direction. Even the teams who successfully transitioned to within-team facilitation expressed a strong preference for external facilitation, and believed it would enhance team efficiency and performance. We are still considering this unexpected result as it relates to future grassroots teams.

### D. Team performance and efficiency

Based upon the number of experiments conducted and the artifacts produced by each team, there is no doubt that the Fall 2017 teams were more productive than the Spring 2017 teams as measured by participation and number of experiments completed. We attribute this to the much improved facilitation in the Fall semester, the benefits of having had one semester of grassroots efforts from which to learn, improved team diversity (i.e., shifting from faculty-centric teams in Spring to Fall teams with faculty, students, and staff), and refined focus for each team developed according to SD processes.

In addition, we observed what we believe to be an underlying principle for grassroots team success: teams pursuing projects that strongly aligned with the job roles of the most passionate team members achieved better success than teams with weaker alignment. As a practical matter, *this often meant that teams led primarily by staff members generally achieved greater success than teams led by faculty*. For instance, the team pursuing a more flexible co-op program for students was led by several staff members whose roles are related to work experiences in the academic unit or in the college of engineering. Their primary job role is to support students seeking work experiences through co-op and internship positions. As such, this team's project aligned very strongly with the roles of many of its team members.

One example of a faculty-led team that produced significant results was the team focused on improving conceptual understanding in mechanics [24], and this team was driven by a faculty member teaching the specific mechanics course. In this team, nine experiments (in-class demonstrations in which all students used actual hardware) were performed in the Fall 2017 semester, each with its own assessment. In this case, the team's work aligned very strongly with the faculty member's job role, and this alignment enabled rapid progress and creation of multiple experiments within the same semester. We suspect this question of alignment of the team's work to job role (when coupled with Guideline 5 [choose projects for

which you do not have to ask for permission] in Table I) is crucial for grassroots team success.

## VI. DISCUSSION AND LESSONS LEARNED

Throughout several semesters of forming and supporting grassroots teams, our research group has identified several significant mediators of and barriers to change that are ground-level, practical issues. We view these considerations as existing on a parallel path to Henderson's four-quadrant model; while that model presents an aspirational way to conceive of change, our experience elevates rubber-meets-the-road issues that can either amplify or extinguish change.

Our experience revealed several change suppressants:

- The logistics of assembling a group of busy people in the same room, for an extended period of time, to work through the challenging but crucial early stages of the SD process were unexpectedly a massively time consuming endeavor that could easily derail even well-intentioned participants.
- A corollary to this is that data systems may also hinder scheduling, either because participants do not participate in the shared calendaring system in the organization, or do not keep their calendar up to date.
- We definitely observed a "death by committee" phenomenon in our Spring 2017 teams due to ineffective facilitation and—more importantly—lack of alignment in project focus with team member job roles.

In contrast, we learned that these factors can promote positive team outcomes:

- Alignment of team member job roles with the focus of their work seems essential, and for this reason we observed that staff-led teams often out-performed faculty-led teams. *This introduces the tantalizing question of what faculty believe their job role is, and we have research under way to explore this notion.*
- Agile facilitation by an external-to-the-team person that keeps the team focused on its work, provides neutral, objective feedback on their proposed activities, and enforces gentle discipline on the process was crucial for team productivity, efficiency, and morale.
- Diverse teams (in many dimensions, but especially in role in the academic unit) do indeed seem to perform better. The best performing teams in Fall 2017 were composed of students, faculty, and staff.

## VII. CONCLUSION

This paper describes our recent efforts at creating and supporting grassroots faculty teams to design and implement changes in our academic unit. We described the vision for how teams would be formed and managed, as well as the evolution of that vision over time as we supported teams that achieved various levels of success. Our change model, a variation of Strategic Doing, was consistent with Henderson's conception of how change can happen in an academic organization, but adapted for our local context and the goals of our project. We learned that agile (external) facilitation, alignment of team

member job role with the team's work, and team diversity were important factors that helped enable team success. Our ongoing work will continue to gather data on grassroots teams, and future work will describe in detail the vast data collected from our teams, and our interpretation of how that data can inform future iterations of grassroots teams to promote academic change.

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