

Building Your Team of Change Champions

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Abstract— This interactive workshop uses the metaphor of a baseball team to illustrate the variety of people-roles involved in making educational improvements happen, as well as the academic ecosystem in which these changes occur. When making smaller-scale changes, the members may be more loosely structured like an informal sandlot team, though core roles still need to be fulfilled. Larger-scale changes may require visible change champions with different specialities, such as managing and coaching staff, and a team maintaining the stadium. This workshop looks at the broad scope of individuals necessary to field a team of change champions and helps participants build their own “roster” and “scouting” processes, whether their current (or envisioned) change is big, small, or somewhere in between. Everyone interested in changing engineering education is welcome. You do not need to have a “big idea” or a team to be part of this workshop.

Keywords—*change; change agent development*

I. WORKSHOP OVERVIEW

While many efforts have been made to develop both technical and professional skills in engineering graduates, there has been little change in the pedagogy of most engineering education institutions in the U.S., despite the evolution of engineering education in many countries around the world. Many of these improvement efforts involve changing only one or two aspects of the curriculum, and are often bound to fail in making significant changes in the student learning experience due to the limited change in the curriculum. These failures, then, become the library of stories we tell ourselves about the feasibility of change. We choose, instead, to use a metaphor to insert new stories into the library, changing the *expectations* of how the story goes and granting a new autonomy to change agents to write their own endings.

This interactive workshop uses the metaphor of a baseball team to illustrate the variety of people-roles involved in making improvements happen, as well as the ecosystem in which these changes occur. Baseball is chosen because of the variety of roles involved, from players to coaching staff to fans to maintenance personnel, and because of the variety of levels it can be played and enjoyed, from formal to very informal,

from amateur to professional, and for all ages and skill levels. When making smaller-scale changes, the members may be more loosely structured like an informal sandlot team, though core roles still need to be fulfilled (like pitcher, catcher and fielders on defence, and hitters on offence). Larger-scale changes may require visible change champions with different specialities, such as managing and coaching staff, and a team maintaining the stadium. This workshop looks at the broad scope of individuals necessary to field a team of change champions and helps participants build their own “roster” and “scouting” processes, whether their current (or envisioned) change is big, small, or somewhere in between. Everyone interested in changing engineering education is welcome. You do not need to have a “big idea” or a team to be part of this workshop.

This workshop builds on earlier FIE special sessions addressing change and understanding ways to be agents for change in education [1,2] which looked at ways to build common ground and communicate within a given academic context. Our research has shown that extending one agent to include a team of change agents taking on particular roles can increase the chance of successful implementation of change [3,4]. Participants will leave with strategies for building a team and understanding how this can be affected by the desired scale of change.

A. Workshop Presenters

The presenters/facilitators are the research team whose results created the foundation of this workshop and are also the authors of this paper. They have published several papers on resituating the research-to-practice cycle within the context of the engineering education ecosystem, broadening your change team to include administrative constituencies, and successful curricular change at the small and large scale. Two members of this team were part also part of the team which won the 2015 Helen Plants award for excellence in presenting a special session at the FIE conference.

B. Workshop Agenda

The three hour workshop will be split into three sections:

- Defining the Field of Play and the Team

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- During this section of the workshop, participants will build a shared definition of the baseball metaphor and develop the primary visible, invisible, and supporting roles of the change team members. Additionally, the participants will begin to develop how different types of change (the “field of play”) require different sets of team members.
- Activities during this session will include group discussion and report-out as well as naming the individual “trading cards” in the change agent set.
- All Seasons Training and the Minor Leagues
 - During this section of the workshop, participants will engage with the roles defined in the first section, change management literature, and the results of the Center of Engineering Learning and Teaching’s Pioneers Project to develop the qualities and attributes necessary to develop in each team member given their role in the change process. Participants will also consider ways to develop these skills in individuals and to value the contributions of all team members.
- Planning for Your Own Change Pursuit
 - During this section of the workshop, participants will develop their own plan for implementing what they have learned back home. The action planning will emphasize building teams that will make successful engineering education improvements as well as confirm the narrative of success across the institution.
 - Activities during this section will include working with a small group to develop an action plan and committing to three actions over the next two months that will move them closer to an engineering education goal.

The anticipated audience for this workshop consists of faculty members and administrators interested in improving their ability to create and sustain transformation change in CSET education. This change may be in the curriculum, culture, personal / professional development, or any other relevant area. In order to maintain the interactive nature of the workshop, we would prefer no more than 35 attendees.

II. CHANGE HAPPENS AT MANY SCALES

This paper provides an overview of what we mean when we talk about the different “scales” within which members of the CSET (computer science, engineering, and technology) community might seek to make change.

A. CSET Ecosystem and Scales of Change

One of the common models for understanding how organizations interact with their ecosystem is the open systems model [5], a modified version of which is seen in Figure 1. While not the only model in use, we introduce the open systems model here because it demonstrates both interaction and feedback nature and the fractal nature of, and across, the levels of scale in the CSET ecosystem.

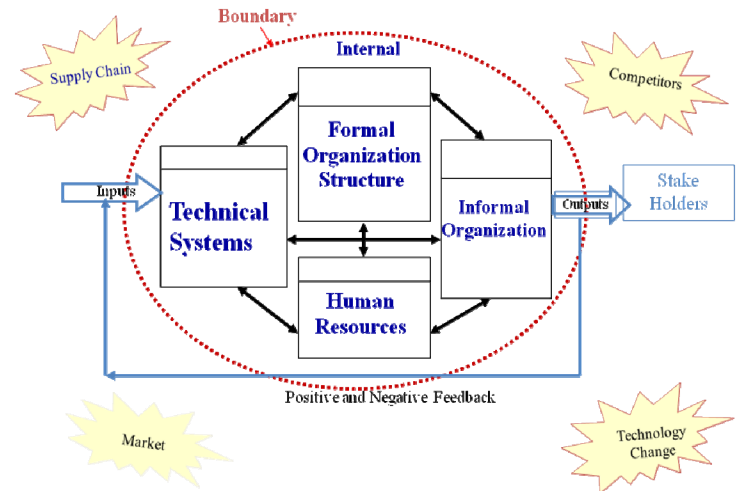


Figure 1. Modified Nadler-Tushman Open Systems Model.

The base open system model in Figure 1 illustrates the organization as those elements within the red dotted line boundary. These internal to the organization elements take inputs into the organization and transform them into the outputs generated by the organization. The technical systems are those that directly add value to the outputs, like the work done in classrooms and laboratories. The other internal elements are the supporting pieces which make the value added processes possible. Outside of the red dotted boundary line is the external environment of the organization, including the vast variety of stakeholders and other, sometimes loosely, linked organizations in the ecosystem [1].

The boundary line is particularly important to our ability to manage change because we have the ability to draw the boundary line around any level or unit of organization we desire. This means that we can use this framework to talk about change in a particular course session, a course, a degree program, a department, a college, or the entire CSET ecosystem. You can think of this as the fractal nature of organizations: frameworks and models repeat at different scales as we change how we draw the boundary line around the organization we are working in at a given moment, whether more inclusive or more specific and focused. We will discuss in the next section how understanding our unit of change is important to how we approach and manage the change.

B. Why Scale is Important

From the above, we can see that studying and supporting the management of positive change at all levels/units is important. It is also important to understand at which level, or

unit, one is currently working to match your approach and management of the change. Given the fractal nature of organizations, there are also impacts, both positive and negative, at different levels or units of change. Even changes made at smaller units of organization, such as a single course, can cause ripples through the fabric of the ecosystem the change agent might not expect. One of the authors received a call from a faculty member in a different department asking about her pedagogical practices because students had told the other faculty member that they should teach more like the author's active and collaborative learning-based course.

The potential repercussions of change also have different scales as you go from level to level. For example, the impact to the student of a degree program's loss of accreditation may mean they move to a different degree program, however the effect of that same change has larger repercussions on the department and university. Fortunately, this also works with positive impacts, such as encouraging students and being inclusive.

In the "Building Your Team of Change Champions" workshop, we will explore ways your unit of change determines the types of team members needed to sustain your positive impacts and insure the impacts of your work are tied to your goals and appropriate across all levels of organization.

III. WORKSHOP OUTCOMES

After participating in this workshop, individuals will:

- Understand the variety of visible, invisible, and supporting roles on the change team;
- Be able to articulate the types of roles central to different levels and sizes of change;
- Describe the qualities and attributes needed in the variety of team members and how to train themselves and others in these skills; and
- Be ready to scout for new team members among all constituencies.

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