

Synthesis of Scholarship on Change in Higher Education

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In this paper, I have been asked to address *planned* change in higher education related to Science, Technology, Engineering and Mathematics (STEM) reform. I was charged to review what concepts or theories have been identified in the higher education research that can help advance thinking on STEM reform. In order to meet this objective, I draw largely on a meta-analysis I conducted of all change research across the multi-disciplinary literature base in 2001 that outlined six major theories of change: evolutionary, lifecycle, teleological or management science, political, social cognition, and cultural theories.¹ For more detail about these theories of change please see Kezar, 2001. Many of the concepts and guidelines below are drawn directly from these six major schools or theory areas that have been used to describe and understand change. Not all of these theories of change are focused on planned change and instead address adaptation and ways institutions may evolve in unplanned ways and may not be relevant to the focus of this meeting. I will put the change theory in parenthesis after each concept. A chart in the Appendix 1 outlines the major assumptions of each theory.

In this paper, I outline concepts and guidelines for change that might be considered theories of change, given the definition used by the project team for the meeting.² The overall argument presented in this paper is that change is a complex and multi-faceted process that often requires various theories of change in order to properly understand and enable it, particularly deep or complex changes. Most studies and efforts fall short by falling into the trap of focusing exclusively on one or two theories. The review of many different concepts and models and the way they facilitate change will underscore this point. Second, different types of changes utilize related, but slightly different change approaches (organizational versus systems change; and deep transformational versus more superficial changes). Third, change in higher education is unique and needs to be contextualized to the institutional setting.

¹ While it may appear I am drawing largely from my own research, that is inaccurate. I have conducted meta-analysis across different studies, so when I refer to books or articles, they are not of my own work, but synthesis of many researchers.

² The definition of “theory of change” used for the project meeting is: a predictive assumption about the relationship between desired changes and the actions that may produce those changes - If I do x, then I expect y to occur, and for these reasons. Theories of change, whether explicitly stated or implicitly embedded, underpin policies and programs that seek to change organizations and social systems. These assumptions also underlie all choices of action in everyday life. I would like to add onto this definition that theories of change in the social sciences are often context based. Change is highly contextualized to the circumstances, type of change, and institutional culture and environment and requires creative leadership and not formulaic approaches.

The paper will proceed as follows:

1. Review the notion of systems versus organizational change to demonstrate different strategies may be required for different scales or levels of change;
2. Higher education is a unique context and change requires adapting strategies to this context;
3. Describe deep or transformational change and highlight one major study of change because it was one of the most comprehensive (arguing that transformational change requires unique strategies); and,
4. Provide tentative implications for using the change literature to develop questions and areas for conversation among attendees at the meetings.

I use one example of a systems change throughout the paper to highlight and make the assertions more tangible.

1. Systems Versus Organizational Change

An important distinction is whether change is occurring or desired at the systems level—across the sector of higher education (or a certain subsector) or whether change is occurring or desired at the “organizational” level—at a specific institution. Systems change typically requires more external levers (like accreditation, disciplinary societies). Some examples can be helpful. In the early 1990s, approximately 200 campuses in the country offered service learning courses and service learning was mostly unknown. By 2000, close to 3,000 campuses across the country offer service learning courses and it is one of the most well-known pedagogical strategies. It is offered across every institutional type and discipline. How did this occur in 10 years? Several descriptive studies have been conducted of the service learning movement and suggest some strategies that were helpful:

1. National organizations were formed such as Campus Compact.
2. States created their own campus compact support systems and regional networks.
3. Federal legislation such as AmeriCorps provided support.
4. National higher education associations made this a central part of their national agenda included in meetings and publications.
5. Grant funding was made available from the federal government and private organizations.
6. National associations such as the American Association for Higher Education worked with disciplinary societies to create resources, textbooks, and leadership related to service learning.
7. Grass-roots faculty activists on campus were supported by national organizations with recognition and rewards.
8. New journals were created to publish research related to service learning to share information and research. Also, an entire literature base developed on service learning examining implementation, outcomes, philosophy and the like.

9. National, prestigious awards were developed.
10. Annual national and regional conferences were started for service learning advocates and leaders to meet and discuss their evolving understanding of service learning.

The list could go on and on, but essentially an entire infrastructure: awards, funding, external organizations to provide legitimacy, networks to share knowledge and support, was formed. It is also important to note that Liz Hollander, the executive director of Campus Compact for 10 years, and other leaders in the service learning movement (CSL) had a background in community development and social movements.³ This background enabled them to understand the dynamics of system/institutional change processes that I will be describing below. Service learning leaders used multi-frame thinking, developed sensemaking, adopted politics and other strategies that are often not utilized by postsecondary leaders who use a narrow set of strategies and take a more “rational” and linear approach to change. Simply developing a vision, creating a plan, implementing the plan, and evaluating the plan is unlikely to work and has not proven successful in most change processes which will be demonstrated in the research reviewed below.

Another example is the “green movement” on campuses across the nation. Similar to service learning, few campuses had a sustainability plan in 1990. By 2008, over a thousand campuses are working on sustainability plans. Similar to service learning, a host of organizations, grant funding, and conferences and journals were established. Unlike service learning, the green movement on campus has a unique quality that helped forward the agenda: visibility. The public political dialogue on global warming created awareness more broadly in the society about environmental concerns and provided additional support on college campuses. Other examples of initiatives that have had national impact and offer instructive lessons are learning communities, undergraduate research, and diversity. Efforts to scale-up STEM reform will be more successful if change agents use the strategies from earlier movements that have achieved scale and institutionalization, particularly ones that have a curricular or pedagogical component like service learning and learning communities.

I will refer back to these examples of systems change as I describe the change concepts below, particularly the service learning example. While systems change can be facilitated through institutional changes, it usually requires additional layers of work among external and intermediary bodies.

Unique Systems Level Approach

One of the most important principles to keep in mind, related to systems change, is that a reform is unlikely to reach scale without setting up a system of intermediary organizations and external levers or support, beyond the systems in place on campuses for institutionalization. There is a large body of literature outside of education, particularly in public policy on scaling up innovations and change; this is an important

³ I will be referring to this community service learning movement as CSL throughout the rest of the paper.

area of literature that the project team should examine.⁴ While many of the principles that are important for systems change are also important for organizational change (including sensemaking, multi-frame thinking, etc.), there are some unique factors to consider when creating systems change in particular. The key sections discussed below that are unique to systems change are the sections that discuss intermediary organizations, external levers, networks, how levers vary by institutional context and institutional phase.

Establishing an Intermediary Organization for the Specific Reform

Organizations like Campus Compact are intermediary organizations—organizations that have the singular mission of attempting to make the change or reform occur. These organizations are able to dedicate a bulk of their efforts to the priorities of the change, something a campus alone may not be able to do. College campuses have multiple priorities and typically cannot provide the needed leadership to scale-up a change; though, on occasion a charismatic leader does champion a change. However, a more systematic approach that leads to successful scaling up is to obtain support from an external organization that is dedicated to making sure the reform moves forward. Eventually this group can be called upon to develop accountability structures. Campus Compact provided the vision and rationale, created networks, convened communities of practice, provided technical support and resources, established awards and other support systems. With respect to CSL, this movement eventually established several organizations with the sole mission of supporting the scale-up of CSL nationally. Intermediary organizations can also provide legitimacy and credibility to campus initiatives. (*Teleological and evolutionary*)

External Levers Within the Sector/System Outside Individual College Campuses

For systems change in particular, obtaining endorsement or support from government, foundation, and existing intermediary organizations that influence the system (such as accreditors, foundations, disciplinary societies, federal and state agencies, community organizations) is an important facilitator of change. Not only does the systems change gain legitimacy through endorsements and support, but this support also allows for external levers to be in place. When a system is met with external levers, there is an opportunity for the system to change according to external demands and expectations. External levers also contribute to sustainability of change by making the change a part of the larger system. The CSL leaders worked to get CSL as part of accreditation standards, a part of the dialogue of disciplinary societies, the Carnegie classification scheme, into government legislation and funding, into foundation priorities, and into state and community funding systems. Each part of the system was capitalized on to enable and support change. (*Evolutionary*)

⁴ In general, literature on education has not focused on scaling up because few cross institutional or sector level innovations have been either conceptualized or studied. In this paper, I do not review the scholarly literature on scaling up that exists outside education. One example is presented in order to demonstrate the value of this research. Gladwell (2000) applied tipping point theory to identify three key social actors to trigger large-scale social transformations: mavens who screen and accumulate relevant ideas and knowledge; connectors to inject them into organizations or the society at large; and salesman who have the intuition, the charm, and the energy and motivation to persuade and induce decision-makers to act.

Networks

In order to capitalize on bottom-up leadership and the host of individuals throughout the distributed leadership structure of organizations, campuses need to establish better networks around the change initiatives that they are engaged in. If a campus wants to change pedagogical practices, it is important to link up the individuals who share an interest in a new pedagogical approach. One of the strategies typically used by successful change agents is to establish a center that can bring people together related to a particular change (a center on integrated technology for example) or to use an existing center like the Center for Teaching and Learning on campus to host events to bring together individuals with similar interests. This network can serve a variety of purposes from creating a coalition to support a change effort, to developing a communication system for spreading information necessary to implement a change, and expertise to brainstorm problems and provide needed human resources where they are required (Kezar, 2001 and in press). Having networks that extend beyond the college or university also allows for a stronger collation by expounding on the current strengths of an internal network. As noted above, CSL centers created strong campus networks through centers for community service learning or across campus teams. In addition, CSL leaders created state and regional networks through Campus Compact that supported individual CSL leaders on campuses so they had outside contacts and would not become isolated.

(Political)

Levers Vary by Institutional Context – Culturally Responsive Principles

Research on institutional transformation demonstrates that the organizational mission, history, and values are important in facilitating the change process (Kezar & Eckel, 2002). First, understanding the institution's history is part of developing an effective change strategy, which is cognizant of previous change initiatives, campus politics, and past leadership. Second, strategies that are developed that take into account current campus climate and culture are much more likely to resonate with existing faculty and staff and to be embraced more readily with less barriers and resistance. Sensemaking is further facilitated when the change is contextualized. CSL leaders were aware of the differences by institutional type and developed unique strategies for research universities and community colleges, appealing to different values, reward systems, and goals.

(Cultural)

Understand Institutional Phase

Studies of organizational change also demonstrate that change processes often have a life cycle—phases of the change process—and that leaders are more effective if they understand what phase the campus is in with respect to implementing a specific change (Kezar, 2007). Researchers have identified three phases of the change process: 1. mobilization, 2. implementation, and 3. institutionalization.⁵ During the mobilization phase, leaders will be more successful if they focus on providing a vision, creating energy and enthusiasm for the change, and obtaining the professional development people need. During the implementation phase, structures need to be put in place to support the change, reward systems established, and human, financial and technical resources

⁵ Also referred to as enactment, selection, and retention.

provided. Lastly, during the institutionalization phase people need to be held accountable and progress towards the change should be measured. Changes can be thwarted if the wrong leadership strategies are applied during the various phases or if key elements of the change process are left out. For example, if leaders forget to move from vision and direction into providing the appropriate accountability structures or financial support, then the change may never get off the ground. CSL leaders spent years working on mobilization before moving to implementation, and have worked to obtain the needed levers for institutionalization ranging from accountability structures, on-going funding, to being included in institutional mission statements. When you are trying to achieve broad scale, recognition that campuses can be at very different phases and need different strategies is important (*Lifecycle*).

System and Organizational Approaches

The concepts reviewed below have been found to be important for both systems and organizational level changes.

Sensemaking and Systems for Learning

One of the most important findings about the change process is that it requires opportunities for institutional agents to engage in a process that helps them to understand the necessary change. A variety of studies (Eckel & Kezar, 2003; Kezar & Eckel, 2002; Gioia, & Thomas, 1996; Schon, 1983; Weick, 1995) demonstrate that one of the main reasons that changes do not occur is that people fundamentally do not understand the proposed change and need to undergo a learning process in order to successfully enact the change. Change processes alter key meanings and interpretations and people need to engage in dialogue and interactive processes where they sort out what the envisioned change means for the identity of the organization and themselves. Change is essentially about “meaning reconstruction.” In other words, people can read about service learning or new wave-calculus but still not *really* understand it. Research demonstrates a variety of vehicles that can be created that facilitate sensemaking including: structured dialogues, retreats, concept papers, workshops, action teams, staff development, outside presentations, and cross departmental teams. Also, five key strategies for change: senior administrative support, shared leadership, robust design, staff and faculty development, and visible action, can be enacted to create sensemaking (detailed more later in this document). Sensemaking is related to learning, but is slightly different with the emphasis on interpretation and feelings, not just cognitive learning. For example, CSL leaders made sure to create concepts papers at the national level that could be shared locally. They organized dialogues and national forums that could inform on-campus dialogues. National speakers went around to campuses across the country to help spread the word about CSL helping people truly understand this pedagogy by explaining it philosophically, underscoring the rationale, value, and potential. (*Social cognition*)

Data, Assessment, and Evidence of Effectiveness

As noted above, change processes require people to go through sensemaking processes. One of the levers for creating new sense is data. Several recent studies in higher education have demonstrated the role of data/assessment in helping people to develop

new understandings.⁶ For example, the equity scorecard⁷—a benchmarking tool that collects data about the diversity of students, faculty, and staff and examines student outcomes disaggregated by race—has been used by a host of institutions to help them to examine data in order to develop appropriate interventions and undergo a change process. Evidence from the study suggests that interventions developed at the local level, using institutionally based data, can be extremely successful in developing contextualized interventions that appear more effective than generalized approaches. Daryl Smith has developed a framework for measuring progress among institutions trying to advance diversity agendas. His research has also demonstrated that institutions that measure their progress are more likely to continue to change and meet their goals. To date, I am unaware of any specific studies that examine evidence about the effectiveness of a particular change initiative and its role in facilitating or creating change, within the higher education environment. However, that is not to say that most change movements have not used evidence of effectiveness to move their efforts forward. At this point, the relationship between evidence and success in change has just not been examined. With the example of service learning, data and evidence about effectiveness was part of their strategy. For example, Eyer and Giles (1996) conducted a national study demonstrating the enhanced learning outcomes as a result of adopting service learning. They specifically conducted the study to advance service learning because a common criticism had been that we do not understand how it affects student learning outcomes. In fact, the development of scholarly journals devoted to service learning and a research conference designed to showcase scholarship on service learning was created to foster the movement. This data became part of the rational or vision described later. (*Social cognition and teleological*)

Multi-frame thinking – viewing change within complex systems

Another reason that change is difficult is that people tend to analyze organizational situations or systems from a single perspective, even though we know that complex social and organizational phenomena like change typically involve various organizational subsystems including human relations, organizational structures, politics, and resources. Change also involves organizational culture ranging from issues of mission, tradition, and history (Birnbaum, 1992; Kezar, 2008; Tichy, 1983). These different perspectives on organizational phenomena would be incorporated in multi-frame thinking. Multi-frame thinking is well summarized in a book by Bolman and Deal (1997). Studies by Bolman and Deal and others demonstrate that leaders tend to focus on or approach change from a single vantage point such as navigating politics or setting up new organizational structures and restructuring. Few people are able to develop strategies for change that cut across the various sectors or organizational subsystems necessary for effective change. Again, one of the limitations tends to be cognition or the mindset from which people approach change. As noted earlier, CSL leaders used political, structural, cultural, and human relations approaches to create the service learning movement. (*Combines teleological, political, and social cognition*)

⁶ There is also a body of research about how evaluation and assessment helps to foster and move change efforts forward.

⁷ developed by Estela Bensimon at the University of Southern California

The Need for Both Transformational and Transactional Tools

In addition to multi-frame thinking, leaders need to operate in both transformational (provide vision, appeal to common values) and transactional ways (measure progress, hold people accountable). Research has identified that leaders can gravitate towards a single leadership style, either transactional or transformational; however, change requires both transformational and transactional styles (Birnbaum, 1992; Kezar & Eckel, in press). Some people need to be inspired, understand how the change relates to their value system, wrestle with intellectual ideas, and have their enthusiasm fueled. Other times (or with other types of personalities), people need to be held accountable, rewards put in place, and progress measured. On a transformational level, CSL leaders developed a cadre of national and regional speakers who were brought to different campuses to inspire change and keep up the momentum. CSL leaders also initiated change on a transactional level. They put in place systems such as accreditation standards related to service learning, had a new Carnegie category developed called “engaged campus,” and established national awards. (*Teleological*)

Different Changes Require Distinctive Approaches

Each change needs to be examined for what strategies and approaches will work the best given the specifics of the change initiative (Kezar, 2001). Creating a childcare center on campus is a wholly different activity from integrating technology into the classroom and having all faculty members on campus use technology effectively. Creating a childcare center will require more structural support and cultural changes so that people feel comfortable utilizing the resources from the center while integrating technology will require structural and cultural changes, but will *also involve training and development* about how to use the technology. CSL leaders recognized that disciplinary societies control teaching norms and that these societies needed to be involved in the change process to be effective. Also, CSL leaders provided training for faculty on how to integrate this new pedagogy into the classroom. (*Cultural*)

Structural Supports

Change processes at the institutional level need some level of structural support over time to be fully institutionalized. On-going funding and operational support are needed, appropriate staffing, access to information, and other forms of support are necessary for a change to be sustained. Many changes have come and gone because they never had enough structural support, so they were the first to be removed in times of fiscal scarcity. CSL leaders have seen service learning centers come and go over time and the leaders have realized that in order to have sustainable change, they need to ensure ongoing structural support. Many centers were started with outside funding and never received institutional funds. For changes to be sustainable, they need to become part of the institutional structure, budgeting and priorities. Maybe not initially, but over time these centers should be incorporated into the institutional structure. (*Teleological*)

Vision and Rationale

The literature on the importance of vision has often been overemphasized. A sense of clear direction or a set of goals is necessary but not sufficient to create change. If a sense of direction is missing or the direction is felt to be unclear, this deficit can set up a barrier

to change. One of the reasons for the success of the service learning movement is that leaders made a clear case for the importance of academic service learning to democratic understanding, citizenship, and experiential learning. Movement leaders defined the difference between service learning and volunteer opportunities and described how service learning could be incorporated into chemistry, classics, or social science classes. They demonstrated the academic rationale and emphasized how academic service learning could help meet the institutional learning goals. This rationale and the tangibility of the concept made the possibility for change more real and movement leaders were aware of this need for a clear vision with simple and exacting rationale. *(Teleological)*

Becoming an Institutional Priority can Facilitate Change, but Everything Can Not be a Priority

Perhaps one of the greatest challenges for organizational change, in particular, is that so many different change initiatives are now vying for attention and organizations can only respond to so many different changes simultaneously (Eckel & Kezar, 2003b). Campuses are now being asked to meet a multitude of tasks: integrate new technologies, adopt processes for meeting the needs of new students, become more international and global, experiment with new pedagogies such as collaborative learning, experiential learning, problem based learning, and service learning; assess student learning, cut costs, use resources more efficiently, have more transparent processes, create greater access, retain more students, graduate students on more timely basis, create a better workforce, develop more informed citizens, engage their communities more, and list goes on. Not all of these issues can be institutional priorities at once or institutions will become paralyzed. There are not enough resources to support the laundry list of challenges that postsecondary institutions face. So, one of the most formidable challenges to any initiative is to become an institutional priority given the long list of institutional priorities that currently exists. Focusing on a few initiatives at a time leads to more success than trying to take on too many changes. Also, priorities aligned with the mission of the institution are likely to be integrated more easily and become a priority. *(Political)*

2. Higher Education as a Unique Change Context

One of the major arguments that I and others have made over the years is that higher education is a unique institutional type that needs to approach change in a different way from business or other organizations. While I believe some of the principles from studies of other organizations can be helpful, strategies for change that incorporate the unique context of the Academy tend to be more successful. Some of the characteristics that I outline in my research are:

- Higher education as a loosely coupled system in which decision-making and authority are distributed;
- The values-driven environment in which normative arguments are extremely powerful for change;
- The role that academic disciplines play in shaping interaction on campus;
- The multiple power and authority structures from boards of trustees, to presidents, to the faculty senate;

- The shared governance system; the distinct professional and administrative values; the long commitment and tenure of employees; and,
- The goal ambiguity in which members of the organization are striving for very different outcomes and goals.⁸

Some of these principles are further elaborated below, as they have been directly studied and linked to change. CSL movement leaders were very aware of the unique features of higher education and varied their strategies to be more successful within the specific environment of higher education. One example of them being aware of loose coupling is developing centers for CSL on campus that could work with faculty across campus, but having the centers be developed through faculty leadership across campus, rather than having a center be mandated from the administration. In general, this notion of customizing change to the context is a cultural strategy. More concepts and examples are provided below.

Concepts and Examples

Politics and Using Political Skills

Another concept related to being aware of the postsecondary sector/context is using politics effectively (Kezar, 2008). Postsecondary institutions are extremely political environments and ignoring politics is unlikely to lead to a successful change process. A plethora of studies have demonstrated the importance of political strategies: agenda setting, mapping power structures, identifying influential stakeholders and the like to successful institutional change (Kezar, 2001). Studies of systems change, such as service learning or environmentalism, also demonstrate the role of politics. Campus Compact was aware that if college presidents, especially of elite institutions like University of Michigan, made a statement about the importance of service learning and campus-community partnerships that this would help to create buy-in. Campus Compact used a political strategy, arguing for CSL centers to be housed in academic affairs rather than student affairs, in order to underscore the essential role of faculty, curriculum and pedagogy, and also to signal CSL work as academically credible. (*Political*)

Staff and Faculty Development Opportunities

Various studies have identified the role of training and development in supporting a host of different change initiatives from technology, diversity, assessment, and pedagogical innovations such as service learning or learning communities (Kezar, 2001). Professional development helps create and deepen sensemaking and fosters learning necessary to undertake the change effort. Because higher education is a professional bureaucracy, professionals like training offered by their peers. Thus, the most successful development opportunities tend to be developed by faculty for faculty or by staff for staff. Training developed by human resources offices or outside groups tends to be less successful. CSL leaders recruited faculty from various disciplines to develop workshops to help other faculty integrate service learning into their courses, rather than offering this training themselves. (*Lifecycle*)

⁸ For a complete list and more elaboration of the unique characteristics, please see Kezar, 2001.

Image, Imitation, and Isomorphism

Various studies have demonstrated that colleges and universities respond to benchmarks or peer comparisons (Kezar, 2001). Colleges do not want to be perceived as being behind or too far ahead of their peers. Having trendsetting institutions that are respected in the field provides the benchmarks and comparisons necessary to enable other institutions to follow suit. One does not need many institutions, but having a few institutions that publicly promote the change initiative is helpful. Because colleges and universities often do not have a clear bottom line or easily measurable goals, they tend to use image and reputation as a way to understand their performance. If institutions believe that their reputation and image can be positively impacted by adopting a change, they are much more likely to adopt it. Studies of imitation and isomorphism—campuses of different mission increasingly adopting similar practices—identify how organizations in similar sectors tend to take on common practices of institutions that are considered prestigious regardless of functionality or effectiveness. For corporations, in contrast, affecting the bottom line has a much stronger impact than reputation or image. One of the strategies that the service learning movement used was getting a few trendsetters to embrace and discuss service learning. (*Social cognition & political*)

The Role of Disciplines

Tony Beecher and Burton Clark have identified how academic disciplines have historically played a significant role in a variety of higher education processes from ability to collaborate, approaches to governance, knowledge construction, approaches to teaching and learning. One could also extrapolate that disciplines will likely be a major lever in change processes. Only one major study has been conducted that examines the role of disciplines to change – Trowler (1998) — *Academics responding to change: The new higher education and frameworks and academic cultures*. However, the study does not look at the role of disciplines in enabling or hindering change, it looks at the way that disciplines shaped the way academics see changes that happen on campus. While research evidence is unclear, the CSL example provides support for the role of disciplines. CSL leaders mobilized disciplinary leaders and actively engaged disciplinary societies in dialogue about new ways of teaching and learning. (*Cultural*)

Leadership at All Levels or Distributed Leadership

Partly as a result of the way higher education institutions are structured (decentralized governance and power structures, goal ambiguity, professional knowledge base), top-down leadership efforts at change are typically not successful (Eckel & Kezar, 2003b; Kezar, 2001). However, shared approaches tend to frustrate people because change can be protracted in nature. One of the reasons that change processes tends to be so lengthy is that those with positions of authority typically are unfamiliar with bottom-up leaders that are championing change initiatives on campus. One of the strategies needed for effective distributed leadership is for those in positions of authority to become familiar with grassroots leaders across campus and be able to mobilize them to support and implement the change. Centers for CSL allowed CSL leaders to identify faculty and staff leaders across campus and mobilize them to support the change and create a network of distributed leadership. (*Political*)

Grassroots Faculty Leadership for Teaching and Learning Oriented Changes

As campuses realize the potential of bottom-up leaders among the faculty, they must also become aware of one of the existing challenges to supporting and working in a more distributed leadership model—faculty have not been trained to play a leadership role through their socialization as faculty in graduate school (Kezar, Lester, Carducci, Bertram Gallant, & Contreras McGavin, 2007). Studies of faculty members demonstrate that their socialization does not provide them with skills in working with other people: vision development, effective ways to communicate and persuade, mobilizing others, developing coalitions and networks, navigating politics, analyzing the organization, and other skills described throughout this document. Campuses that want to harness the leadership potential of faculty will need to spend time socializing them to the skills needed to create change and seek out individuals who have this expertise from other work experience. *(Political)*

Creating a More Collaborative System – Collaboration Systems Enable Host of Changes

One of the reasons that change remains difficult in higher education is that campuses organized into bureaucratic silos and systems are so loosely coupled that it is difficult for changes to flow throughout the organization. This issue has tempted many to suggest that the cure for creating more change in higher education is to create more tightly coupled and hierarchical systems. However, research suggests the opposite: creating more collaborative systems, breaking down bureaucratic silos and hierarchies, and creating connections across the loose coupling will likely be most effective for creating changes. Studies of barriers to change often identify lack of collaboration among groups as a reason that a change process was thwarted. For example, administrators discover that issues of retention will require student and academic affairs to work more closely together, but they are unable to get these two groups to create a common strategy. Organizations can increase their capacity for change by creating vehicles that enable collaboration such as cross campus teams, institutes or centers that bring people together across campus, provide rewards for collaboration, and the like (Kezar, 2005). *(Teleological)*

3. Deep, Transformational and Cultural Change

Change initiatives vary dramatically in scale, scope, timing, focus and intention. Some changes are smaller in scale, involving one or two units on campus, and can happen relatively quickly. Smaller scale and simpler changes may not require the extensive strategies outlined above and can be accomplished with the application of a few tools or strategies. Other changes are deeper and require more fundamental shifts in campus operations and some even require a change in culture to be fully implemented. There have been few studies on transformational or deep change in higher education, the exception being the Kellogg Project on Institutional Transformation. The Kellogg Project followed 20 institutions involved in institutional transformation.⁹ Institutions had to be

⁹ Drawn from: Eckel & Kezar, 2003a; Eckel, & Kezar, 2003b; Kezar, & Eckel, 2002.

five years into their change process and had to demonstrate that the aim of the project was to fundamentally change the character of the campus related to some area – diversity, technology, student outcomes assessment and the like. The institutions were studied through case study methodology for five years, following their efforts to see what worked to create this type of deep and lasting change. The study identified the importance of sensemaking, in particular, for deep or transformational changes. From the Kellogg study, the following strategies have been recommended to create transformational change, at the organizational level, and lead to sensemaking.

Recommendations from the Kellogg Study

Supportive Senior Administrators/Leaders

Individuals in positional leadership provide support in terms of value statements, resources, or new administrative structures. Deep change is extremely difficult without true buy-in and support from senior administrators. These leaders help create sensemaking by framing the issue through concept papers, speeches, town hall meetings, retreats and other avenues where they communicate idea. Leaders can also provide people an opportunity to ask questions and better understand the change. In addition to the above facilitation of sensemaking, these individuals are the only ones who can alter rewards and role definitions to enable organizational change. Supportive leaders are committed for the long-term and realize that deep change will take seven to ten years. (*Teleological*)

Collaborative/Shared Leadership

The positional and non-positional individuals throughout the campus are involved in the change initiative from conception to implementation. Many theorists have argued whether bottom-up or top-down leadership is more important. The study identified that grassroots leaders need to be identified and supported, and that it takes leadership at all levels to create deep change. The greater the number of individuals involved, the deeper sensemaking flows into the organization. (*Social cognition*)

Shared, Compelling, and Clear Vision

Shared vision is created with input from people across campus, not in isolation among a few leaders. The shared vision and the means to get there are flexible and do not foreclose possible opportunities so more input can be acquired as more people become part of the change process. Sensemaking is facilitated when leaders throughout campus—not just from the top—define the shared vision. When a vision comes down from on high, it usually does not include the way others on campus make sense of the change; the vision then does not use a shared language and viewpoint. Also, the vision needs to be compelling and provide people a clear direction (*Teleological and social cognition*)

Staff and Faculty Development Opportunities

Staff and faculty development is a set of programmatic efforts to offer opportunities for individuals to learn certain skills or gain knowledge related to issues associated with the change effort. In order to take the shared vision and bring it into action, people need development and training opportunities and the ability to ask questions when they are

unsure about how to enact a change. Professional development provides the ability to practice and receive guidance from others. (*Teleological and social cognition*)

Take Visible Actions and Measure Progress

An important strategy for building momentum within the institution is taking visible action. Changes often fail if people do not see some progress; they begin to believe their time and energy is being wasted. Leaders need to continually monitor and demonstrate progress. Collecting data and showing the campus has met benchmarks can help further encourage change. Leaders can facilitate change activities through publicity so that individuals can see that the change is still important and is continuing. (*Social cognition*)

These strategies all facilitate organizational sensemaking and demonstrate the importance of social cognition theories for deep change. Staff development, shared vision, and collaborative leadership were all effective in creating deep and transformational change in the Kellogg study. These practices provided opportunities for key participants to create new sense of the direction and priorities of the institution, of their roles in the transforming institution, and of the ways that common notions, such as teaching, service, and participation, are evolving and redefined. Leaders are encouraged to frame issues in different ways so that organizational participants can begin to understand the direction that the institution is heading. Leaders on these campuses also provided many opportunities for people to make sense through retreats, townhall meetings, and presentations. Sensemaking occurred at multiple levels in the campuses in the study: individual (staff development & workshops), group (dialogues and symposium) and campus-wide sensemaking (retreats and town meetings).¹⁰

4. Potential Application of Research for STEM Initiatives

1. Clear, direction message or vision

The changes proposed for STEM transformation often span a variety of issues: experiential learning, collaborative learning, international in focus, incorporating diverse students, less passive forms of teaching and learning, research based learning techniques, problem based learning, assessment, and pipeline and access issues. The multitude of issues can make for a complex and perhaps muddled change agenda that is hard for people to embrace. What might a compelling vision look like?

2. Becoming an institutional priority

Many campus leaders will suggest that issues proposed as part of the STEM transformation are already happening on college campuses and will not see the need to create a separate institutional priority for this issue. Leaders will also have difficulty packaging and explaining the STEM transformation because the vision is so diffuse. How can STEM reform become a major institutional priority across the system?

3. Reliance on grassroots faculty leaders

¹⁰ A set of secondary strategies were identified in the Kellogg study including communication, rewards, etc. that are outlined in Kezar and Eckel, 2000.

Many of the National Science Foundation funded projects have been given to individual researchers and faculty members who do not have experience with creating institutional transformation and lack the skills to fully implement the change. Even though the grants typically ask for institutional support, this may not translate into those in positions of authority actually meeting with and implementing a change initiative with bottom-up leaders. It also does not mean that bottom-up leaders are given any training in how to create change. Faculty leaders typically make missteps in the change process, whether it be providing clear direction, navigating politics, or thinking about putting in accountability structures.

4. A Political approach

Government entities and foundations that fund change initiatives typically do not address the political aspects of change. What political strategies have currently been used to move the STEM agenda forward? Have there been any groups that oppose the suggested changes? It is important to examine political strategies that have been (or have not been) used and integrate and a more political approach. A good model for thinking about including politics is the national standards around campus assessment, which has a unit on understanding the politics of assessment (see learning reconsidering – ACPA commission, Pegi Maki).

5. Image leaders and imitation

A political strategy that could be leveraged is to identify campuses that can shape the decision-making of other leaders because of their prominence in higher education. Which institutions can be capitalized on and their investment in STEM transformation be more publicly discussed? Perhaps a public relations campaign could be initiated? What image leaders need to be involved in order to make greater progress?

6. Pedagogical changes or system wide reform?

The specific type of change initiative that is proposed appears to be focused mostly around pedagogical issues—teaching and learning. In designing any change initiative, the type of change needs to be taken into account and a process designed to facilitate that specific change initiative. With the pedagogical approach in mind, change initiatives in STEM have typically targeted faculty (sometimes individuals and sometimes groups), funded an innovation/intervention, and conducted an evaluation of the project, which is consistent with pedagogical reform. However, if the hope is to make these changes prevalent across the sector of higher education, and not end at the level of individual pedagogical changes, then the example from service learning is helpful for achieving system wide reform. Using a broader set of strategies aimed at disciplinary societies, accreditors, trustees, intermediary organizations and other groups that can influence the change is necessary for system wide change.

7. Sensemaking opportunities

Often change initiatives do not incorporate systematic and ongoing processes for sharing information and allowing collective sensemaking. A STEM grant might end with a conference where the grantee hosts interested parties to come to their campus to learn about a pedagogical strategy they tried on their campus. The parties have little investment

in each other and the one-time opportunity to share information does not provide enough support for other individuals to shift their thinking or develop a shared vision. Also, they tend to be working with single individuals from another campus who will be isolated in their knowledge base once they return to their campus. Grants that support institutional sensemaking and that bring people together multiple times within an institution will likely lead to greater change. One interesting framework for this type of work is the summer academy lead by the Institute for Higher Education Policy (formerly lead by AAHE) that brings together cross-campus teams that represent major offices in the institutions related to a particular change who work together for a week at a retreat and then on an on-going basis at the home institution, often several years in a row to move a change agenda forward.

8. Multi-frame thinking

The more that initiatives for creating transformational change in STEM embrace a multi-frame thinking perspective, the more likely they will be to create ongoing and sustained change. Like many change efforts, STEM leaders have likely relied on rational planning models—create a goal, develop a plan, implement the plan, and evaluate the implementation. Rational planning models alone have not been proven to lead to change at the institutional or sector level. These approaches to change sometimes work with individual change agents, following Roger's (1962) diffusion of innovations, but do not translate well into larger scale change efforts.

9. Connect networks

Many different groups have been funded to work on STEM reform and perhaps more intentional and on-going networks can be established to link people to help create sustainable and on-going change similar to the state and regional networks of Campus Compact.

10. Leadership training

STEM change initiatives' reliance on faculty leadership will likely require more systematic leadership training and a specific focus on multi-frame thinking and combining transactional and transformational leadership. Project Kaleidoscope—a program that intentionally works to develop the leadership skills of faculty through a year-long curriculum and handbook—is a helpful example of the thoughtful training that can be instituted to develop faculty leaders who are more successful in creating change. The Kaleidoscope curriculum includes vision development, multi-frame thinking to identify barriers and strategies, and politics, among other important skills. However, any curriculum that works toward these goals can help move the reform forward.

11. Phases of change

Leaders in STEM need to undergo some assessment to understand what phase they are at in the change process and to implement the appropriate strategies. Clearly different institutions will be at different phases, but if this is a sector wide change, some sense of where the initiative is at and a plan for moving forward that attends to the key change strategies for the current phase will likely help the effort progress.

12. Professional development

Professional development has been identified across a host of studies of change in higher education. While professionals such as faculty often shirk at training, campuses that were able to create an appreciation for professional development were able to tap into this important resource to much more quickly move their change agendas forward. STEM initiatives should look for opportunities not just to offer training, but create campus environments where there is an appreciation for professional development.

13. Role of evidence

STEM initiatives may have over-relied on theories of change that believe that if we can identify “what works” then change will occur. There is some evidence to support that leaders can leverage data that demonstrates that a particular intervention works to persuade faculty or staff to try the innovation. Research from organizational learning suggests that having information and evidence is helpful, but not sufficient to create change. As the section on sensemaking and organizational learning suggests, evidence and data need to be part of a much broader approach that involves dialogue, interaction, and debate about the data and evidence. The data and evidence needs to be part of changing people’s views and a broader systemic implementation plan. Also, data and evidence that are not used appropriately, such as not being contextualized to the campus mission, for example, can still fail to be persuasive.

14. Rewards and reward structures

Like evidence, rewards tends to be over-emphasized. Rewards (release time, money) tend to have some influence, but they are marginal compared to other strategies. Reward structures, however, might be a source of support, but in the history of higher education this strategy has not been used much as the structures are so difficult to change. So, there is no way to know if and to what degree reward structures facilitate change. One can extrapolate that it would be a major facilitator of change since it is typically a major deterrent. Reward structures were a barrier for many years to CSL as faculty felt that their efforts to transform teaching might jeopardize their merit, tenure, and promotion. Ultimately, reward structures have not changed vastly in higher education, but CSL achieved scale without changing reward structures. Although there are notable exceptions, current reward structures at most campuses do not support many campus reform efforts.

15. Consider creating intermediary organizations

While there are many different STEM initiatives and grant projects, there are no organizations dedicated to creating STEM reform nationally. The creation of organizations that provide support services and help to move the reform forward may increase the scaling-up process.

16. Engage the disciplines

The more that the STEM initiatives engage disciplinary societies in sustained dialogue the more likely it is that changes will occur. While part of the reform efforts are to break down disciplinary lines and it may seem counter-intuitive to work with disciplinary groups, they may be partners that can help move efforts forward.

17. Identify institutions at similar phases to work together and pair with an advanced campus

NSF grants have employed the change strategy to connect campuses that are similar or that can learn from each other, e.g. ADVANCE grants. This is an important strategy to continue to use to help scale up reform and engage campuses in deep change.

Selected References

- Birnbaum, R. (1988). *How colleges work: The cybernetics of academic organization and leadership*. San Francisco: Jossey-Bass.
- Birnbaum, R. (1992). *How academic leadership works: Understanding success and failure in the College Presidency*. San Francisco: Jossey-Bass.
- Bolman, L. G., & Deal, T. E. (1991). *Reframing organizations: Artistry, choice and leadership*. San Francisco: Jossey-Bass.
- Eckel, P., Hill, B., & Green, M. (1998). *En route to transformation*. (On Change: Occasional Paper, No. 1.) Washington DC: American Council on Education.
- Eckel, P. & Kezar, A. (2003a). Key strategies for making new institutional sense. *Higher Education Policy*, 16(1), 39-53.
- Eckel, P., & Kezar, A. (2003). *Taking the reins: Institutional transformation in higher education*. Phoenix, AZ: ACE-ORYX Press. Gioia, D. A., & Chittipeddi, K. (1991). Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, 12, 433-448.
- Gioia, D. A., & Thomas, J. B. (1996). Identity, image and issue interpretation: Sensemaking during strategic change in academia. *Administrative Science Quarterly*, 41, 370-403
- Kezar, A. (2008). Understanding leadership strategies for addressing the politics of diversity. *The Journal of Higher Education*. 79(4), 406-441.
- Kezar, A. (2007). Tools for a time and place: Phased leadership strategies for advancing campus diversity. *Review of Higher Education*, 30(4), 413-439.
- Kezar, A. (2005). Redesigning for collaboration with higher education institutions: An exploration into the developmental process. *Research in Higher Education*, 46(7), 831-860.
- Kezar, A. (2001). *Understanding and facilitating organizational change in the 21st Century: Recent research and conceptualizations*. Washington, D.C.: ASHE-ERIC Higher Education Reports.
- Kezar, A. & Eckel, P. (in press). Advancing diversity agendas on campus: Examining transactional and transformational presidential leadership styles. *International Journal of Leadership in Education*.

Kezar, A., & Eckel, P. (2002a). Examining the institutional transformation process: The importance of sensemaking, inter-related strategies and balance. *Research in Higher Education*, 43(4), 295-328.

Kezar, A., & Eckel, P. (2002b). The effect of institutional culture on change strategies in higher education: Universal principles or culturally responsive concepts? *The Journal of Higher Education*, 73(4), 435-460.

Appendix 1

	Evolutionary	Teleological	Lifecycle	Political	Social Cognition	Cultural
Why change occurs	External environment	Leaders; Internal environment	Leaders guiding individual's natural growth	Dialectical tension of values, norms, or patterns	Cognitive dissonance; appropriateness	Response to alterations in human environment
Process of change	Adaptation; Slow; gradual; Often non-intentional	Rational; linear; purposeful	Natural progression; result of training and motivation; altering habits and identity	First order followed by occasional second order; negotiation and power	Learning; altering paradigms or lens; interconnected and complex	Long-term; symbolic process; non-linear; unpredictable
Outcomes of change	New structures and processes First order	New structures and organizing principles	New organizational identity	New organizational ideology	New frame of mind	New culture
Key metaphor	Self-producing organism	Change master	Teacher	Social movement	Brain	Social Movement
Examples	Resource dependency; Strategic choice; Population ecology	Organizational development, strategic planning; re-engineering; TQM	Developmental models; organizational decline; social psychology of change	Empowerment; bargaining; political change; Marxist theory	Single and double looped learning; paradigm shifting; sensemaking	Interpretive social science; paradigm shift; Processual change
Criticisms	Lack of human emphasis; Deterministic quality	Overly rational and linear; inability to explain second order change; plasticity of people	Little empirical proof; deterministic character	Deterministic; lack of environmental concerns; little guidance for leaders	De-emphasizes environment; over-emphasizes ease of change; ignores values and emotions;	Impractical to implement; focus on leaders; focus on universalistic values; mostly untested
Benefits	Environmental emphasis; Systems approach	Importance of change agents; management techniques and strategies	Change related to phases; temporal aspect; focus on people throughout the organization	Change not always progressive; irrationality; role of power	Emphasizes socially constructed nature; emphasis on individuals; habits and attitudes as barriers	Context; Irrational values, and behavior; complexity; multiple levels of change