



Key Lessons on Institutionalizing Change

Adrianna Kezar

University of Southern California

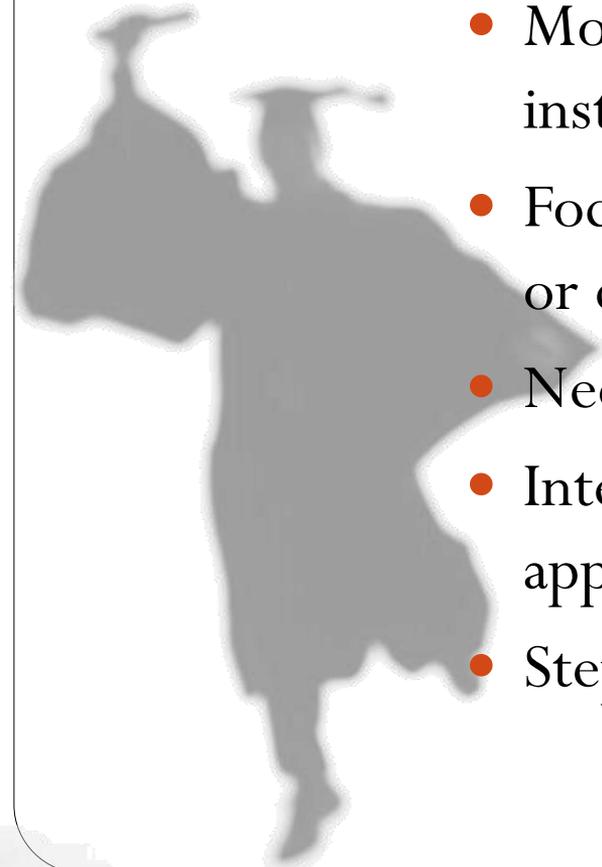
Overview

1. Need for institutional and multifaceted approaches
2. Need to institutionalize changes – means culture change
3. Example of Institutional Process Framework – Keck/PKAL
4. Sensemaking for deep/cultural change
5. Multi-faceted leadership



Institutional Change for **STEM Student Success**

- Move from departmental or single program to institutional response for student success
- Focus often exclusively on a mentoring program or changing faculty teaching practices
- Need for interconnected strategies
- Interconnected strategies require institutional approach
- Stepping stool to ladder



Future: Student success in STEM



Building an Institution wide strategy

- Bridge program
- First year experience course with STEM focus
- Theme based and relevant curriculum
- Changed introductory courses
- Authentic STEM experience first year
- Partnership with business, government and industry around internships and co-op
- Evidence based teaching practices
- Capstone courses, posters and other synthesis
- Math support
- Peer support groups, supplementary instruction and student groups
- Mentoring programs to name a few

Converging evidence

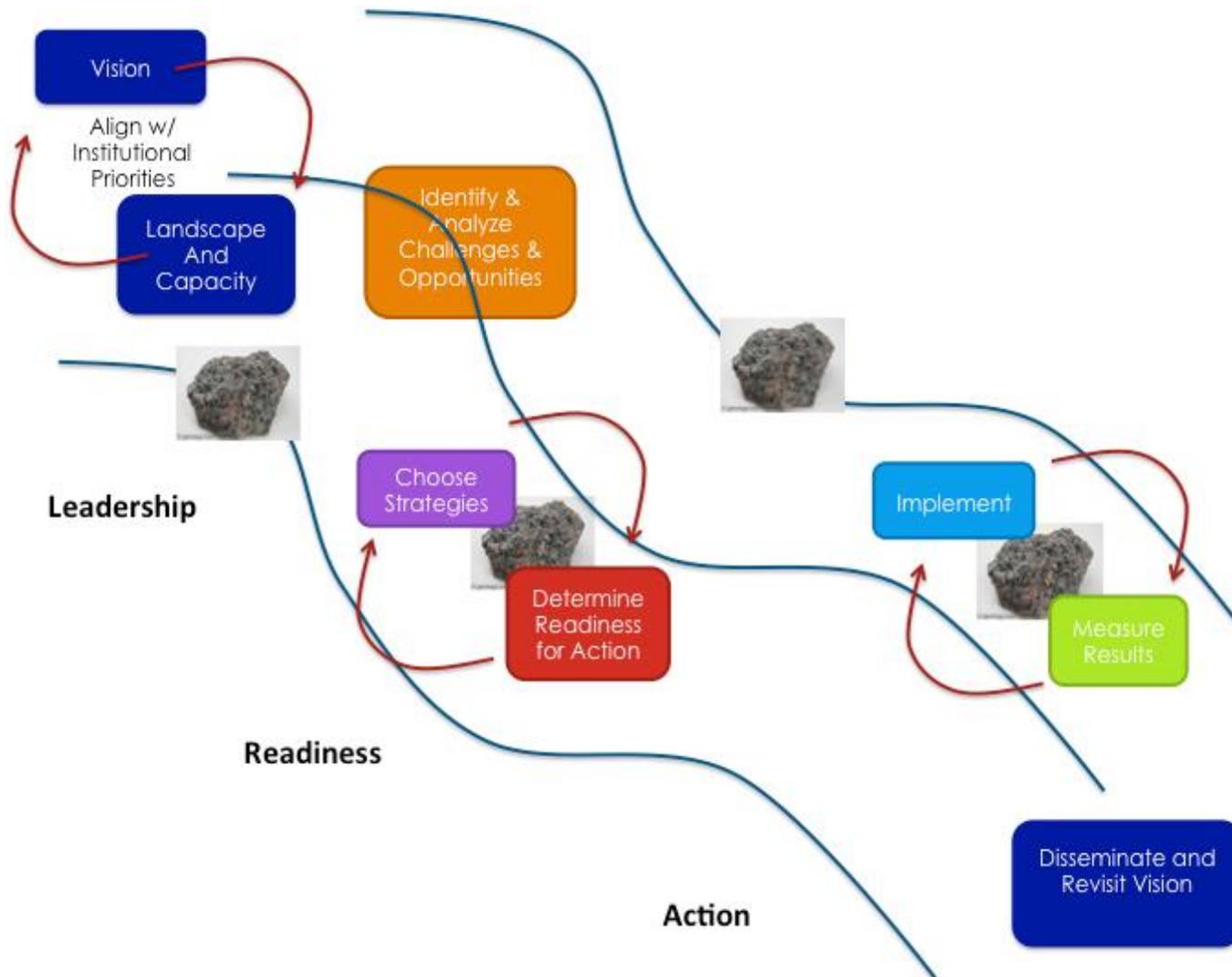
- Upcoming NRC Report
- Meyerhoff Program
- PKAL-KECK project
- CSU STEM Collaboratives

Institutionalizing change: Process



**Change is a process,
not an event.**

Keck PKAL Framework



Underlying assumptions/tools

- Culture change requires organizational learning through review of data and collective reflection
- Culture change requires multi-facted strategy including examination of policies, politics, relationship building, attention to culture and other areas
- Team approach

Elements of Framework

- Vision – in conjunction with data and capacity analysis
- Landscape and capacity analysis – data and assessment; capacity to engage reform
- Identify and analyze challenges – identify both challenges and opportunities for the campus
- Choose strategies and interventions –review research, national projects as well as own assets
- Determine readiness – may again need to collect data – resources, policies, workload, institutional commitment, facilities, incentives, timeline, professional development.....
- Implementation – pilot an idea; leadership critical here, politics, addressing resistance
- Measure results – back to data

Vision

- The vision includes clear goals as well as specific outcomes and measures, and is linked to institutional mission and priorities.
- Is not just about developing a direction but also a common language that everyone understands.
- Use retreats and in-depth meeting time to develop
- Building a larger vision that went beyond the typical focus of one or two best practices was also a challenge
- Example: “Our vision was to properly scaffold these skills (learning how to ask questions, formulate hypotheses, carry-out experimentation, analyze data, and present research in lower stakes environments) to improve retention and help prepare our students for the capstone and beyond.”

Landscape and capacity analysis

- The campus has a clear picture of how students are performing in classes and programs, as well as their attainment of STEM degrees by examining who is coming in, staying, graduating
- A review of institutional, program and/or course data, including analysis of existing curriculum maps, learning environments, pedagogical approaches, student support programs
- An external review of national reports, science education literature and/or projects reported by other campuses at conferences on STEM education
- Sample listed on the AAC&U's STEM Assessments website: <http://www.aacu.org/resources/assessment/STEMAssessments.cfm>

Landscape and capacity analysis

- Examine history of reform, leadership, and buy in and ownership among faculty
- Receptivity and capacity of faculty, staff, TAs, and departments for change
- Identify and catalog existing work - STEM education grants (NSF CCLI, TUES, IUSE, WIDER, etc.), publications, discipline-based education researcher (DBER) faculty
- Essentially this is a learning phase.....

Identify and analyze challenges

- Specifically identify where the problems and challenges lie in recruitment, retention, program offerings (course sequencing, prerequisite requirements), teaching and learning spaces, pedagogy, advising, academic support, etc. This step will help teams evaluate the best possible strategies and interventions
- Common challenges - Retention of URM and/or first-generation students after the first and/or second years; High levels of remediation and/or lack of student success in remedial courses; Outmoded pedagogy in introductory/core courses and/or spaces for active learning.
- Favor assumptions over evidence – this is where learning can be hampered

Choose strategies and interventions

- Campus teams developed better strategies when they were aware of a host of different approaches to addressing common STEM student success problems – some fit certain campus contexts better
- Tendency to choose one intervention rather than think about a linked set of interventions that can best support student success
- To identify opportunities that leverage existing resources and programs, campus teams should talk with leaders in student affairs, undergraduate studies, offices of research/sponsored programs, outreach offices, and community engagement programs to be sure they are aware of all possible connections

Determine Readiness

- Once a particular strategy/intervention has been chosen, then a campus can identify what their readiness is for implementing that intervention – if pedagogical – then perhaps professional development or a survey of faculty
- Common areas and readiness survey - timelines, resources, institutional commitment, incentives and rewards, politics, leadership, staffing, faculty development, incentive structures, buy-in, and data collection and analysis support

Implementation & measuring impact

- The campus has carried out at least one pilot or small-scale implementation of their planned strategy and collected adequate assessment data to monitor effectiveness, make improvements and inform scale up.
- Provide advise regarding implementation such infrastructure (policy/procedures), helpful funding sources/levels, faculty and staff workload management suggestions for resources to be developed and garnering support from administration, and other useful approaches

Range of resources and tools

- Reflection questions
- Readiness survey
- Chart of range of STEM reform options
- Type of data to review
- Capacity survey
- Implementation planning tool

Common challenges

- Jump to interventions without understanding problem or issues
- Lack of buy-in or assume buy in
- Faculty beliefs about their roles as “gatekeepers” or as the “sage on the stage” as opposed to “gateways” or as “guides on the side
- Failure to examine all the implicit assumptions about the problem, possible solutions and approaches
- A lack of capacity for data collection and analysis in terms of support from centralized offices of institutional research

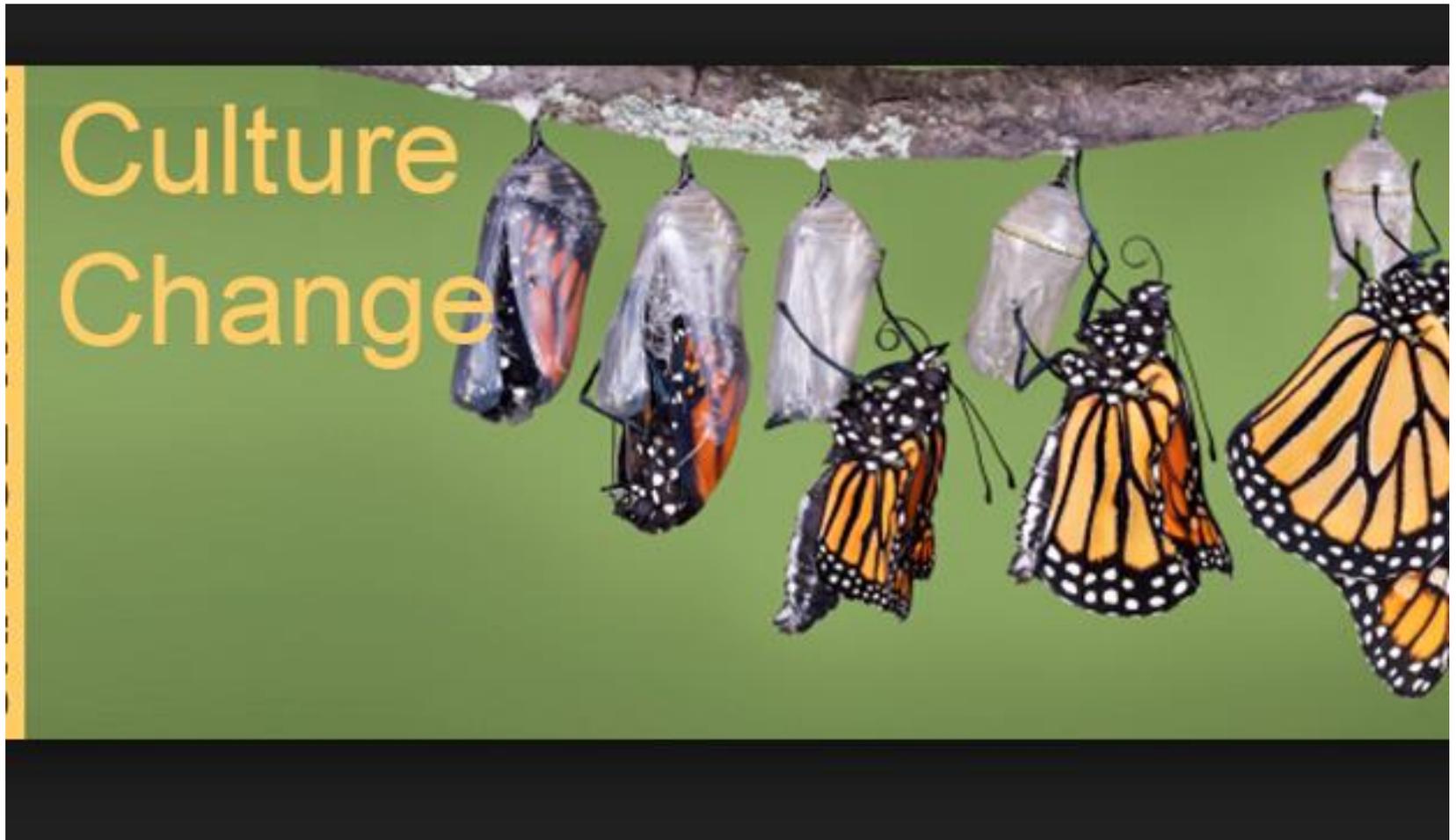
Common challenges

- Inadequate resource identification or realization
- Unforeseen political challenges, such as tension regarding department “turf” or resource and faculty workload allocation
- Shifts in upper level leadership stalling support or redirection of efforts to new campus initiatives
- Changes in team membership because of sabbatical leaves or other assignments
- Failure to connect STEM reform vision at the departmental level to institutional priorities to get support
- Lack of consideration about how students will be made aware of the changes or new programs, as well as the rationale for them

Helpful resources

- Case studies as part of Keck framework
- Leadership critical to these efforts.....more one that later in the presentation
- Project Kaleidoscope offers a yearly summer leadership Institute
- Faculty have developed their leadership skills by participating in regional and national STEM reform networks such as SENCER (Science Education for New Civic Engagement and Responsibilities; <http://www.sencer.net>), BioQUEST (<http://bioquest.org>), and POGIL (Process Oriented Guided Inquiry Learning; <https://pogil.org>)

Institutionalization: Culture change



Sensemaking Tools: Using learning to overcoming resistance

- **Buy in and values change is key for broader buy in and “real” change – in PKAL Framework was review of data and team reflection**
- Create a reading group to review STEM reform strategies or national reports
- Invite STEM reform leaders to give a talk/or set of talks
- Develop learning community on evidence based practices, supporting student in STEM

Using learning to overcoming resistance

- Hold public forums to discuss increasing increasing student success in STEM and ask people to consider their role in this issue
- Hold professional development workshops on factors we know improve URM success in STEM
- Create a concept paper on reasons for the need to increase STEM student success and current barriers on your campus
- Collect data related to student success and give to a cross campus team to investigate and hold forums for discussion
- *This all helps elicit beliefs around student success and challenge them*

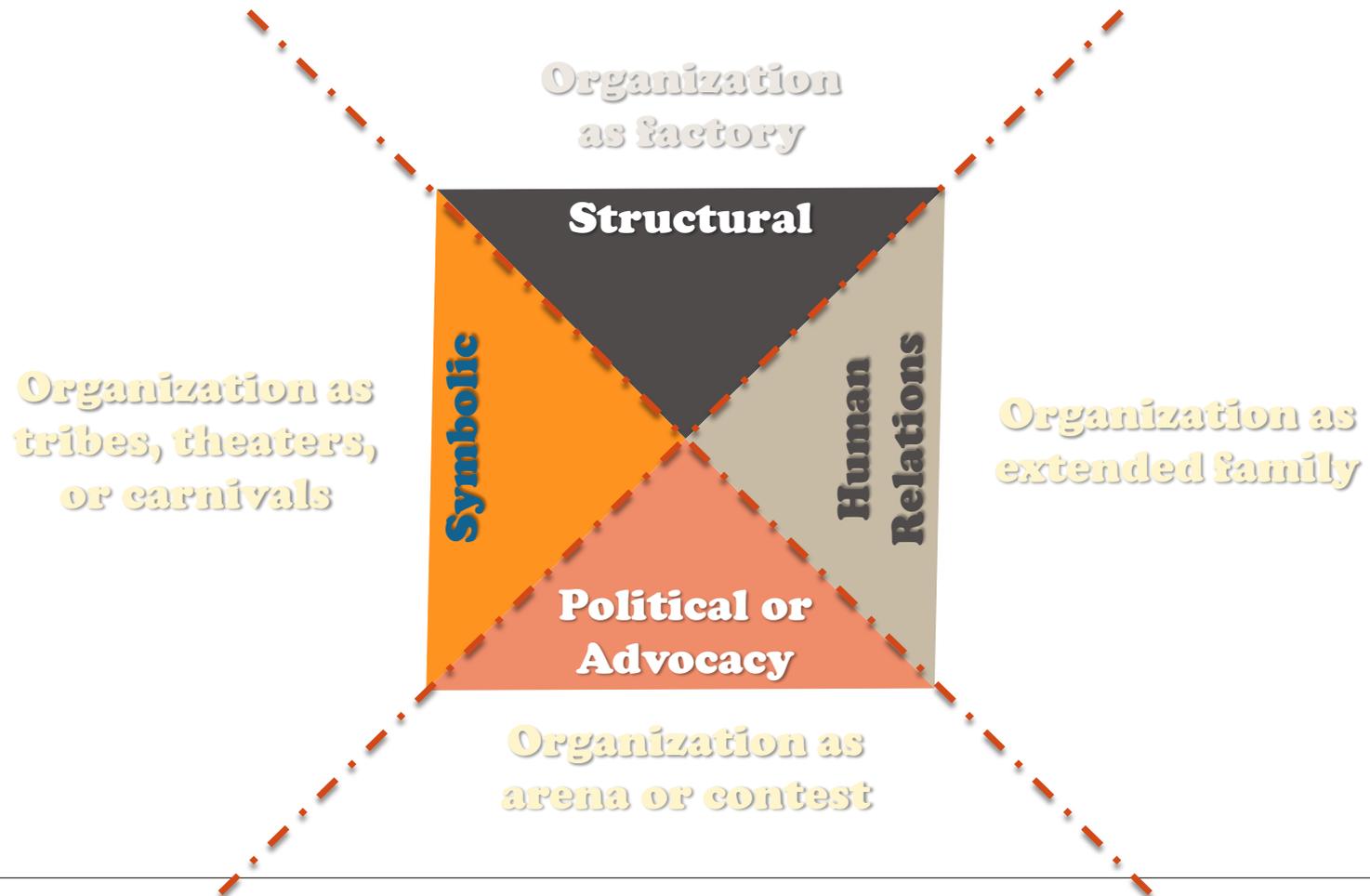
Institutionalization: Leadership



Leadership and Change : **Four** **Frames**

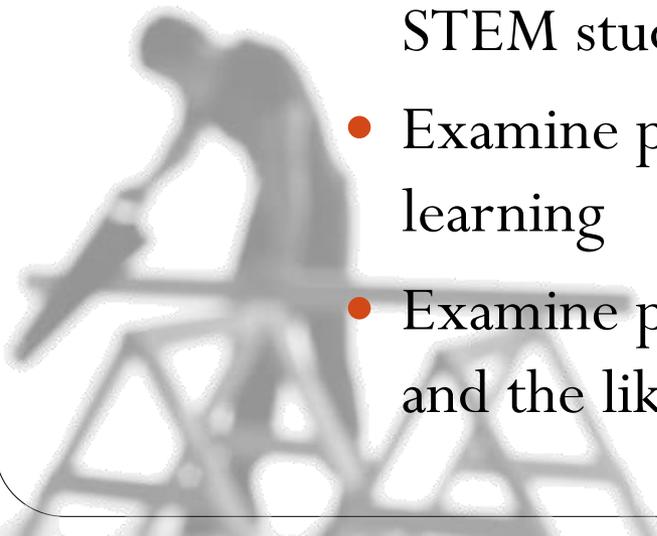
- PKAL-Keck project found leadership skills essential
- Four frames of leadership– Heuristic to consider different change strategies
- Research shows people orient to one or maybe two approaches
- Relates to both how one approaches leadership as well as strategies on develops related to STEM student success
- To analyze leadership styles and strategies of yourself and others
- To enhance one's own set of leadership tools

Four Frames



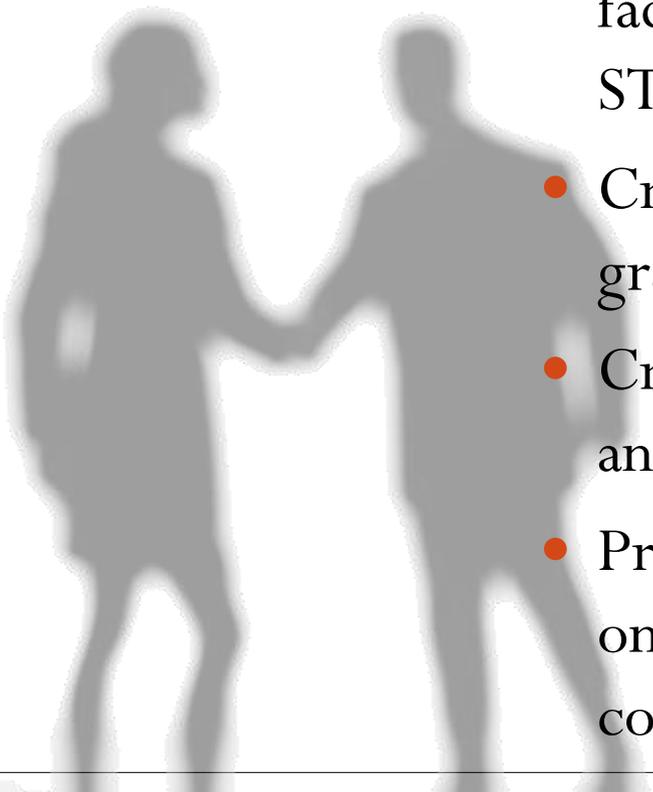
Structural Strategies for Student Success

- Set up a task force or team to focus on STEM reform
- Establish formal plan and goals for increasing student success in STEM
- Assess goals around recruitment and retention of STEM students
- Examine physical spaces – classrooms for active learning
- Examine policies – workload, classroom allocations, and the like



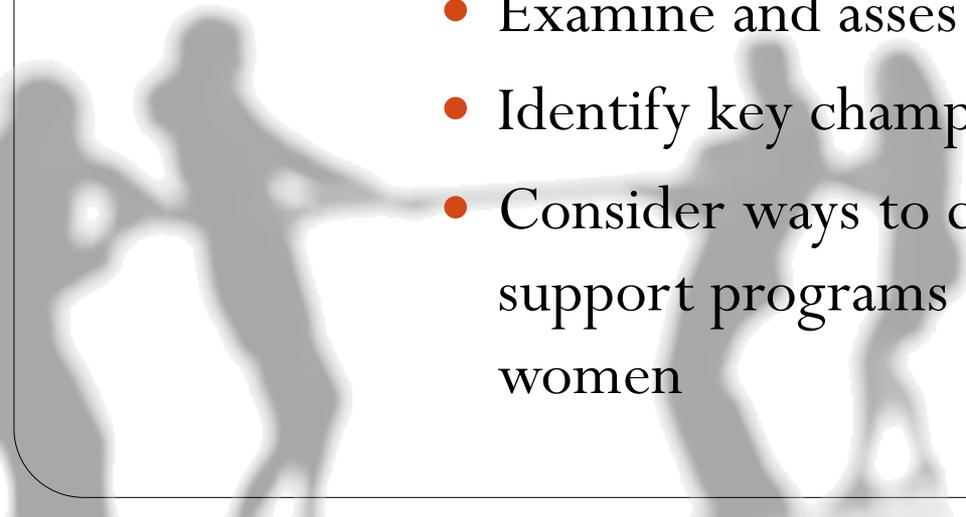
Human Relations Strategies for Student Success

- Provide professional development on ways faculty can better support students in STEM
- Create incentives for change such as seed grants or course releases
- Create mentoring programs for women and URM in STEM
- Provide avenues for staff to have feedback on plans to improve recruitment and completion rates



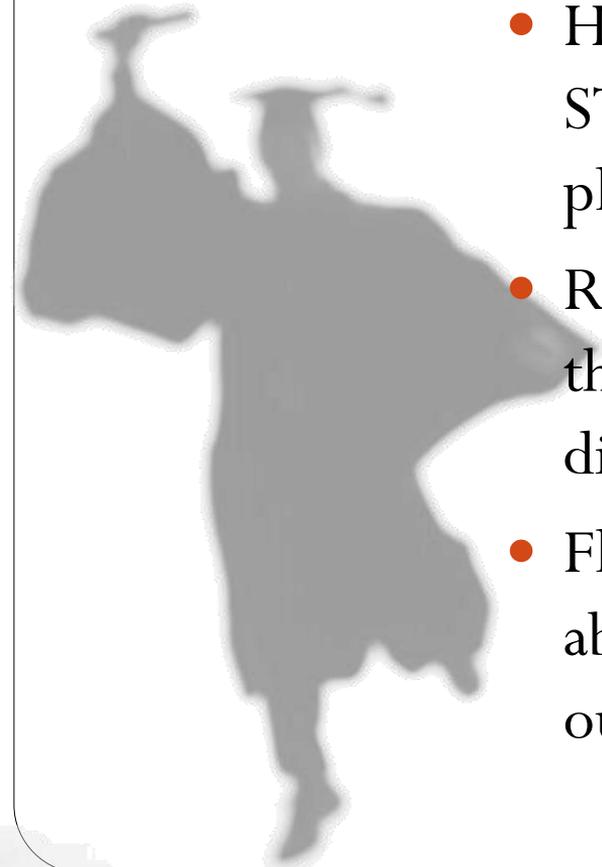
Political Strategies for Student Success

- Form a network with other offices that support student success
- Use assessment results to leverage support for new interventions or programs
- Examine and assess buy in among faculty
- Identify key champions for STEM reform
- Consider ways to create a coalition across various support programs aimed at supporting URM and women



Symbolic Strategies for Student Success

- Have key leaders describe the importance of STEM reform to institutional goals and planning
- Relate success in STEM with URM students to the campus history of being an innovator, to diversity efforts or other established values
- Flesh out and challenge unspoken assumptions about student success, good teaching, learning outcomes



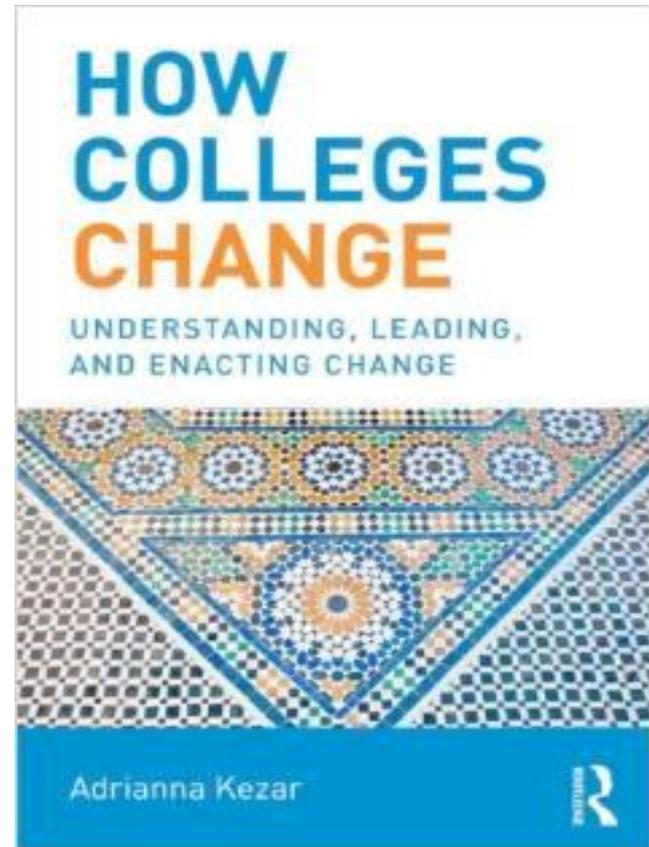
Goal: Multi-frame Thinking

- Create vision or direction for change by analyzing problem and solution through four frames
- Create strategy for achieving vision by addressing all dimensions of organization

Summary

- STEM reform requires an institutional approach to create student success
- There is no recipe for STEM reform – Framework can help pull together multiple complex change strategies
- Culture change, broad buy in and institutionalization requires sensemaking/learning– changing individual mindsets – developing motivation and understanding – in the end – that is what framework is about
- Change/Institutionalization also requires a multi-faceted strategy and approach to leadership using politics, culture, human resources, alteration of values, and campus structures

Resources



References

- Kezar, A. (January, 2012). The path to pedagogical reform in the Sciences: Engaging social movement and mutual adaptation models of change. *Liberal Education*, (98)1, 14-19.
- Kezar, A. & Elrod, S. (February, 2012). How campuses can facilitate interdisciplinary learning: Leadership lessons from Project Kaleidoscope's national initiative. *Change*, 13-21.
- Eckel, P. & Kezar, A. (2003). Key strategies for making new institutional sense. *Higher Education Policy*, 16(1), 39-53.
- Kezar, A., & Eckel, P. (2002). Examining the institutional transformation process: The importance of sensemaking, inter-related strategies and balance. *Research in Higher Education*, 43(4), 295-328.

Are you a change agent? (You Tube)



Questions?

Thank you!