

Promoting Gender Equity in Academic STEMM¹: An Institutional Change Approach

Molly Carnes, MD, MS
Professor of Medicine, Psychiatry, and
Industrial & Systems Engineering
University of Wisconsin-Madison

¹Science, Technology, Engineering, Mathematics, & Medicine

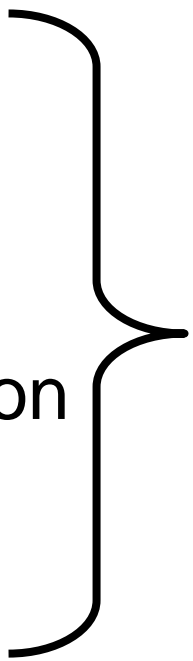
Institutional Transformation:

- Alters the culture of the institution by changing select underlying assumptions and institutional behaviors, processes, and products
- Is deep and pervasive, affecting the whole institution
- Is intentional
- Occurs over time

Eckel, Hill, & Green, 1998;
American Council on Education

Other conceptualizations, terminologies,
frameworks that get to the same end:
Change in *attitudinal* and *behavioral* norms
of an organization

- Innovation diffusion
- Knowledge translation
- Technology transfer
- Information or research utilization
- Organizational change
- Performance improvement



Using
knowledge
to solve
human
problems
(Backer,
1993)

4-stage model of institutional and personal readiness for transferring research into practice – Simpson, 2002; 2007

- Exposure
- Adoption
- Implementation
- Practice

Incorporates theoretical and industrial research findings from the field of organizational behavior

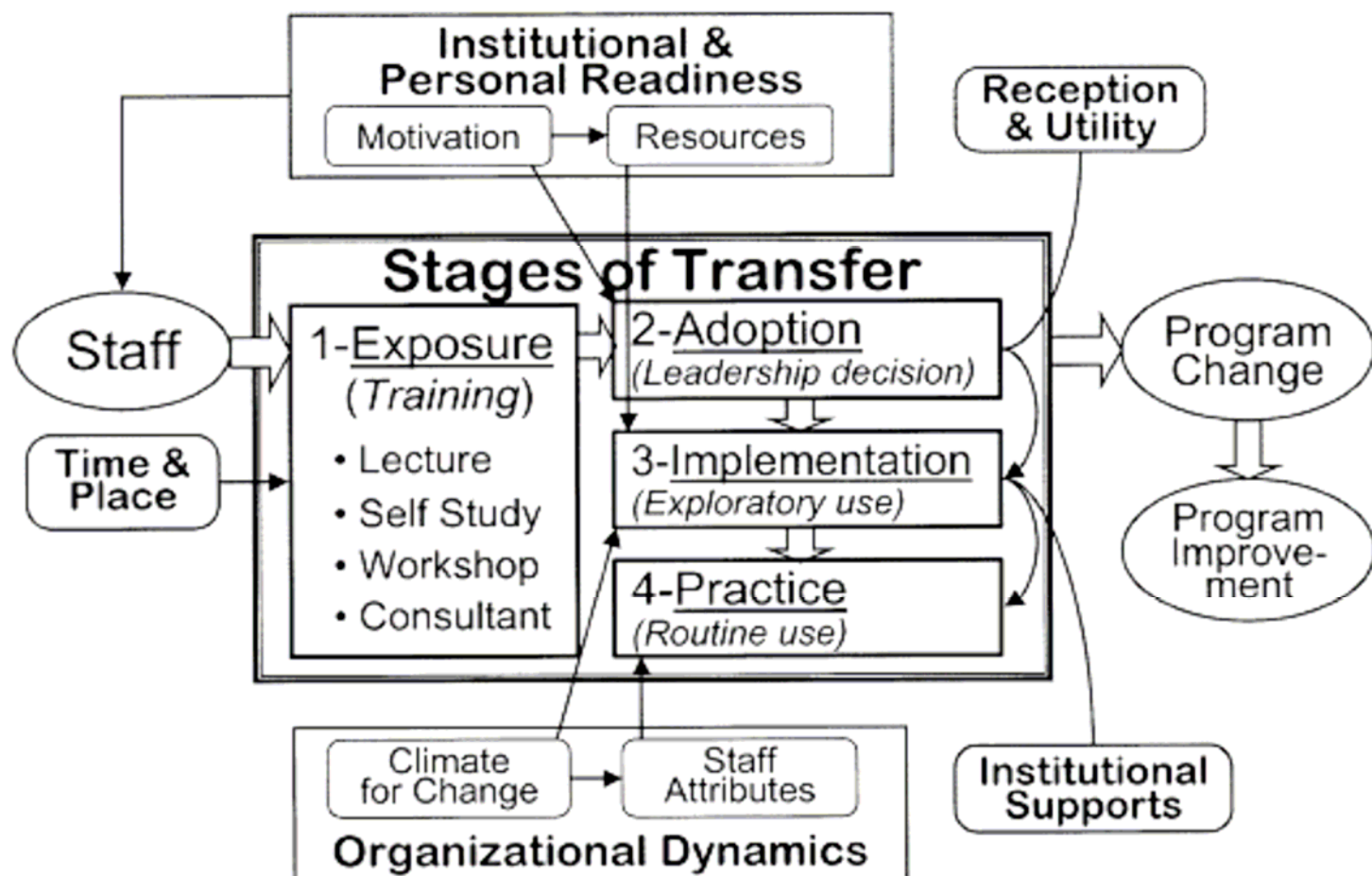
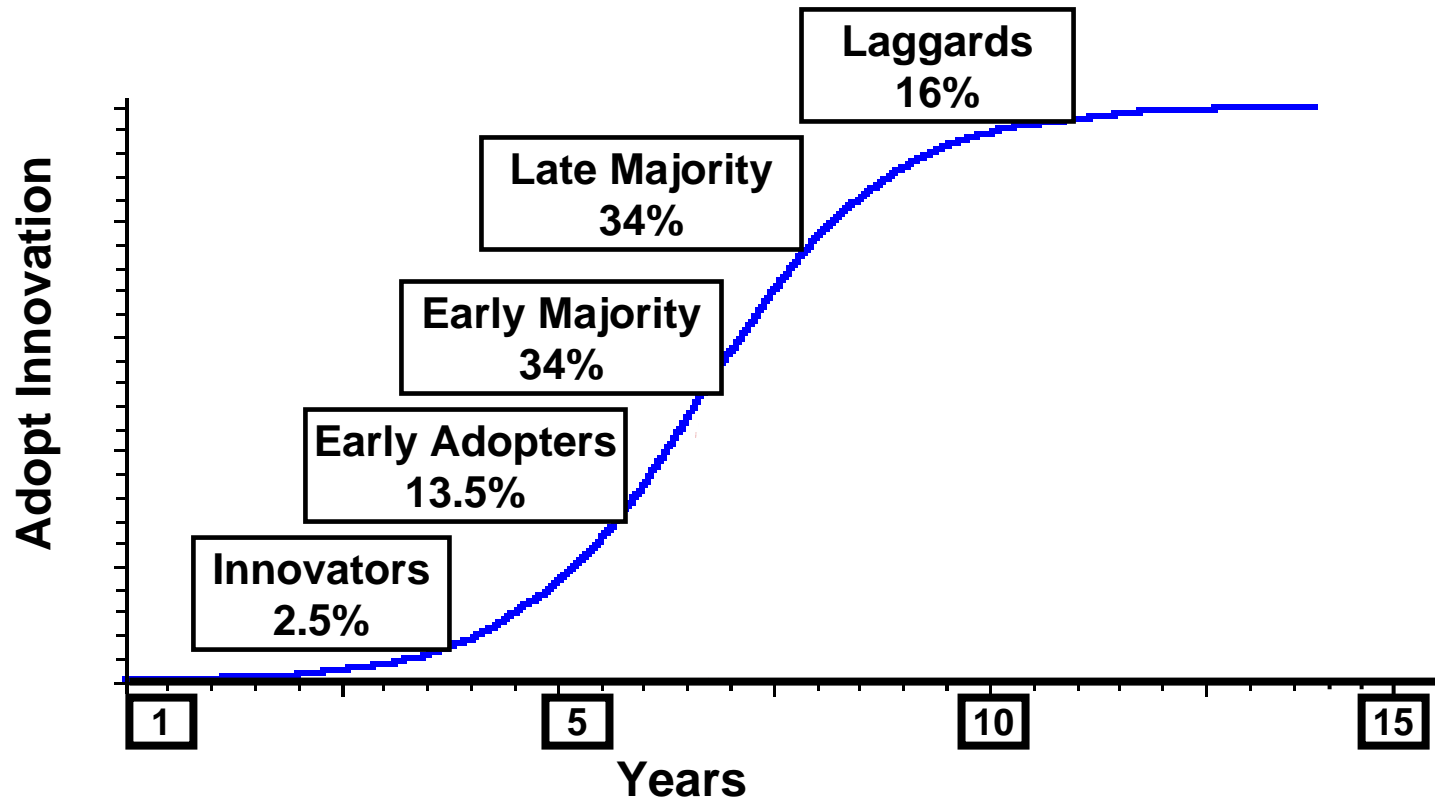


Fig. 1. Program change model for transferring research to practice.

Diffusion of Innovation

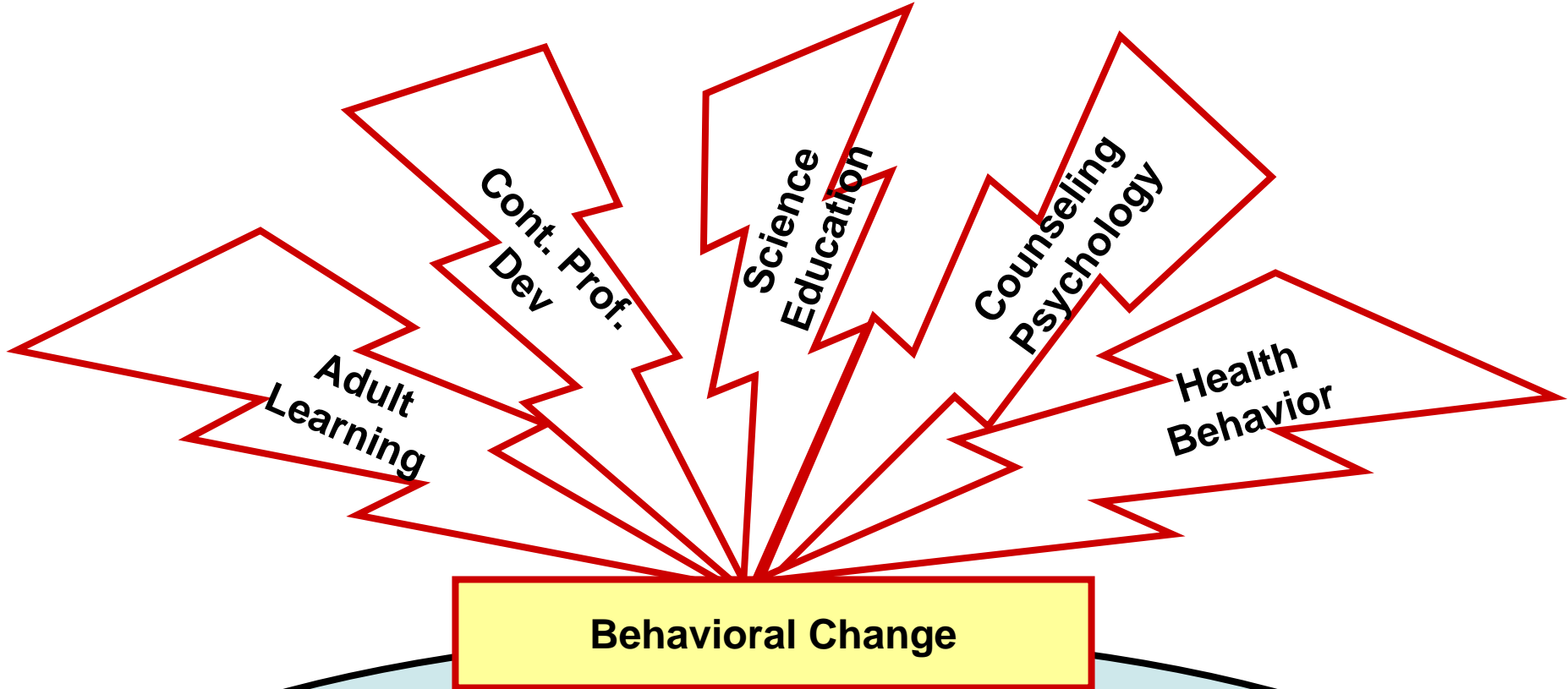
Most innovations have an S-shaped rate of adoption
Gabriel Tarde, 1903; Ryan and Gross, 1940's; E.M Rogers, 1995



Stages of change for smoking cessation and gender diversity

Stage	Smoker	Diversity - Individual	Diversity- Institution
Pre-contemplation	"Smoking is not a problem and I enjoy it!"	"We've always done it this way, and it seems to work just fine."	No resources committed to solutions; no conversations about need to change
Contemplation	"I am worried that smoking is bad for my health and I want to quit."	"To maintain our global economic edge, we must figure out how to invest in our domestic workforce!"	Task force charged with reviewing local data
Preparation	"I am going to buy a nicotine patch and quit on my birthday."	"I am reading <i>Why So Slow</i> by Virginia Valian and plan to attend a workshop on diversity next month	A Strategic plan for examining structural biases that may differentially impede women in place
Action	"I quit!"	"I have included some research on the ubiquity of unconscious bias in the curriculum"	Excellent women faculty recruited, retained, and advanced to leadership
Maintenance	"I enjoy being able to breathe more than smoking."	"I am proud of the advances our school has made recruiting and retaining women."	Institutional data is monitored and made public <div style="border: 1px solid black; padding: 2px; display: inline-block;">Carnes et al., 2005</div>

-
- Institutional change occurs b/c of change in behavior of members of the organization
 - Faculty are the purveyors of culture in academic settings
 - Drive change
 - Maintain status quo
-



- Motivation – person has to *want* to change
- Self-efficacy – person must have self-perceived ability to act in new way
- Positive outcome expectations – person must believe that his/her new actions will result in desired outcome
- Deliberate practice

Progressive movement toward habitually *acting without bias (and feeling good about it!)*

Motivation to respond without prejudice¹

Low External
Low Internal

High External
Low Internal

High External
High Internal

High Internal
Low External

Stages of change – health behaviors²

Precontemplation ► Contemplation ► Preparation ► Action ► Maintenance

Adult learning^{3,4}

Unconscious
Incompetence

Conscious
Incompetence

Conscious
Competence

Unconscious
Competence

1. Plant & Devine, 1998
Devine, 1989
2. Prochaska & DiClemente, 1984
Carnes et al., 2005
3. Howell, 1982
4. Bandura, 1977

Gaps in research landscape in academic gender equity

- Lack longitudinal follow-up
- Fail to address deep social and cognitive root causes of bias
- Lack a control group
- Include only undergraduate students

UW-Madison Proposal

- Group-Randomized Controlled Study
- 90 departments – 45 pairs
 - Randomized to intervention or control
- Intervention = Bias Literacy Workshop
 - Faculty invited to participate
 - Built on principles of adult learning
- Measures
 - Implicit Association Test
 - Motivation to respond without prejudice
 - Gender equity self-efficacy
 - Gender equity outcome expectations
- Department climate – *Faculty Worklife Survey*

Workshop Objectives

- Introduce terminology for constructs that underpin gender bias
- Facilitate identification of constructs through application to case studies
- Offer strategies to promote automatic egalitarian thought and action
- Provide the opportunity to commit to a strategy to practice overcoming gender bias



Motivation

- I want to be seen as egalitarian
- I want the U.S. to remain competitive a global knowledge-based economy
- I don't think UVA can be excellent without diversity in today's world
- My Dean says this is important so I will engage in it

Self Efficacy

- I can recognize and name constructs such as Expectancy Bias and Redefining Merit to Justify Prejudice
- I can examine the position advertisement for language with a gender valence
- I can examine the speaker rosters for UVA events

Positive Outcome Expectations

- If I devote time to recruiting and retaining women faculty to UVA, it will be recognized by my Dean as important
- If I remain in contact with my excellent women students, perhaps they could be recruited back as faculty

Deliberate Practice

- I will ask myself whether gender stereotypes are active in my evaluation of applicants
- I will invite the woman scientist whose poster I liked to campus for our speaker's series to increase exposure to women leaders
- I will adhere to my personal "Commitment to Change" by

Questions?