Change and Adoption: Scaffolding Your New Faculty Workshop Experience

Cassandra Volpe Horii, PhD
Director, Caltech Center for Teaching, Learning, & Outreach
President Elect, POD Network in Higher Education

Physics and Astronomy New Faculty Workshop
June 12, 2017
Why start here?

• Scaffolding
• Transparency

Scaffolding: National Research Council 2015
Objectives:

• Identify aspects of your context and personal characteristics that matter for instructional decisions

• Fit your work into a bigger picture of university science teaching change and adoption

• Tap in to resources that will help and deal with barriers that may hinder

Build a useful structure for your NFW experience
Plan:

1. RBISs, institutions, and people
2. Change and adoption
3. Barriers and resources
RBISs
Research Based Instructional Strategies

What about the R.O.U.S.’s?

1. RBIs, Institutions, and People
RBIS Decision-making

1. RBIs, Institutions, and People
Institutional context & faculty work

1. RBlss, Institutions, and People
Institutional context & faculty work

1. RBIss, Institutions, and People
1. RBIs, Institutions, and People

Context: Institutional Differences
Context: Career Stage Differences

1. RBlss, Institutions, and People
Evaluation and Criteria (P&T)
What does your context look like?

• Sketch your research, teaching, service diagram
  • List specifics/questions in the three areas

Consider:
• Institution
• Career stage
• Criteria (P&T)

5 minutes on your own, a moment to yourself
Institutional context & faculty work

- **Narrative of Constraint:**
  - Barriers
  - Limited resources/time
  - Survival; ”treading water”
  - Isolation

- **Faculty Growth & Learning:**
  - Choice, commitment, agency
  - Personal meaning
  - Change and development
  - Professional Networks

*Often how faculty work has been framed and discussed in the literature...*  
*...misses the underlying experience of/potential for meaning, connection, and collegiality.*

O’Meara, Terosky, Neumann 2008
Research – a buffet of strategies!

Institutional context & faculty work

You – a person, an authentic individual

1. Research, Institutions, and People

Fixed Resources: Won’t Fit!

Overlapping Interests

Teaching

Service

Research

Teaching

Service
Strategic + Meaningful Overlap:

- Choice of service/committees
- Teaching & Research
- Mentoring

Commitments that fuel your sense of mission and purpose
Professional & Personal Identity Matters
- Who do you want to be as a scientist, educator, mentor, colleague...?
- Under what circumstances do you best express your enthusiasm and passion?

Talk with a neighbor! Each of you will talk for 2 minutes; ok if it’s not well-formed/thought out.
Take a moment:

Capture any insights/thoughts in writing.
RBIS Decision-making

Research – a buffet of strategies!
Institutional context & faculty work
You – an authentic individual human

NFW:
Which RBISs align with your context?
With your personality, values, & goals?
1. RBISs, institutions, and people
2. Change and adoption
3. Barriers and resources
Why is university science teaching changing?

2. Change and Adoption
Why is university science teaching changing?
Why is university science teaching changing?

What do you think?

2. Change and Adoption
Research: Change Strategies

Location for change?
- Change individuals
  or
- Change environments & structures

Nature of change?
- Prescribed outcome
  or
- Emergent outcome

2. Change and Adoption

Henderson, Beach, Finkelstein 2011
I. Disseminating: Curriculum & Pedagogy

II. Developing: Reflective Teachers

III. Enacting: Policy

IV. Developing: Shared Vision

Prescribed Outcome

Emergent Outcome

Change Individuals

Change Structures

Henderson, Beach, Finkelstein 2011
I. Disseminating: Curriculum & Pedagogy

II. Developing: Reflective Teachers

III. Enacting: Policy

IV. Developing: Shared Vision

Henderson, Beach, Finkelstein 2011
I. Disseminating: Curriculum & Pedagogy

II. Developing: Reflective Teachers

III. Enacting: Policy

IV. Developing: Shared Vision

Henderson, Beach, Finkelstein 2011
I. Disseminating: Curriculum & Pedagogy

II. Developing: Reflective Teachers

III. Enacting: Policy

IV. Developing: Shared Vision

Change Individuals

Prescribed Outcome

Change Structures

Emergent Outcome

Henderson, Beach, Finkelstein 2011
Who is the change agent?
(Should it be you?)
1. RBISs, institutions, and people
2. Change and adoption
3. Barriers and resources
Barriers to changing teaching:

• Training
• Time
• Incentives
• Tensions with professional identity
Barriers to changing teaching:

• **Training**
  - New Faculty Workshop!
  - ONGOING: Center for teaching/faculty,
  *in situ, on campus resources*
3 Years at Caltech CTLO
Over 200 out of ~300 Faculty
(2012-13 thru 2014-15)

Professor 62%
Asst. + Assoc. Prof. 24%
Non-tenure track 14%

Physics, Mathematics, & Astronomy
Barriers to changing teaching:

• **Time**
  
  - Aligned w/ context & personal values
  - INCREMENTAL ADOPTION: *a little at a time; not all at once*
Barriers to changing teaching:

• Incentives
  - MOVING TARGET
  - Teaching generally mattering more: stay in sync with your campus
  - Ask: e.g., exclude teaching evals, first term teaching or major change

Bradforth et al. 2015
Barriers to changing teaching:

- **Tensions with professional identity**
  - Socialization & role models
  - Classroom: traditionally “closed door”
  - Different kind of achievement
    - *originality vs. collective impact*
Resources:

- **Colleagues:**
  - Observe!
  - Borrow!
  - Steal!

- **+ Mentoring Network**

Sorcinelli & Yun 2007
Resources:

Feedback!

- Learn from student work
- Early, informal surveys
- + Have someone visit (teaching center; colleague)
  - Observation + consultation
  - Focus group
  - Quantitative tools
Closing thoughts:

“Your students are most likely not like you, but then again, you may not have been who you remember.”
and Have More Fun: A Guide to Teaching and Mentoring in Science
\[ K = \frac{1}{2}mv^2 \rightarrow \text{"kinetic" energy} \]

\[ mgh_0 = \frac{1}{2}mv_b^2 - \frac{1}{2}mv_v^2 \]

\[ E_B = \frac{1}{2}mv_b^2 + mgh_0 \]

\[ mgh_v - mgh_0 = \frac{1}{2}mv_b^2 - \frac{1}{2}mv_v^2 \]

\[ \text{E}_0^E = \frac{1}{2}mv_v^2 + mgh_0 \]

Martin Springborg
How did we do?

- Identify aspects of your context and personal characteristics that matter for instructional decisions
- Fit your work into a bigger picture of university science teaching change and adoption
- Tap in to resources that will help and deal with barriers that may hinder

Build a useful structure for your NFW experience

Keep in touch! Email: cvh@caltech.edu, Twitter: @cvhorii
References & Resources


