

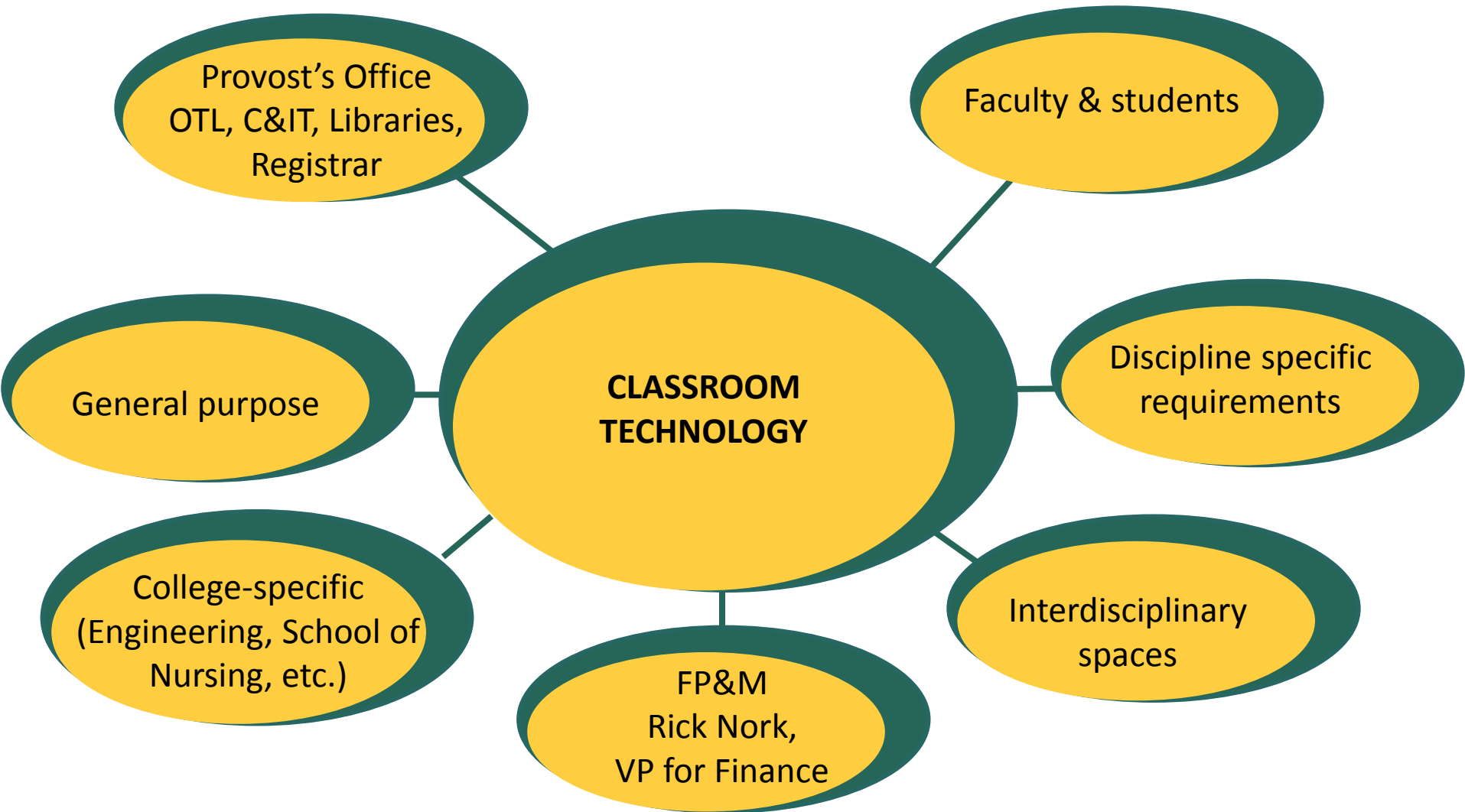
# **Classroom Technology**

**Matt Ouellett, EdD  
Director of OTL and Assoc. Provost**

**and**

**Sandra Yee, EdD  
Dean, School of Library and Information Sciences**

**Academic Senate Presentation  
Oct. 2, 2013**



# General Purpose Classroom Upgrades

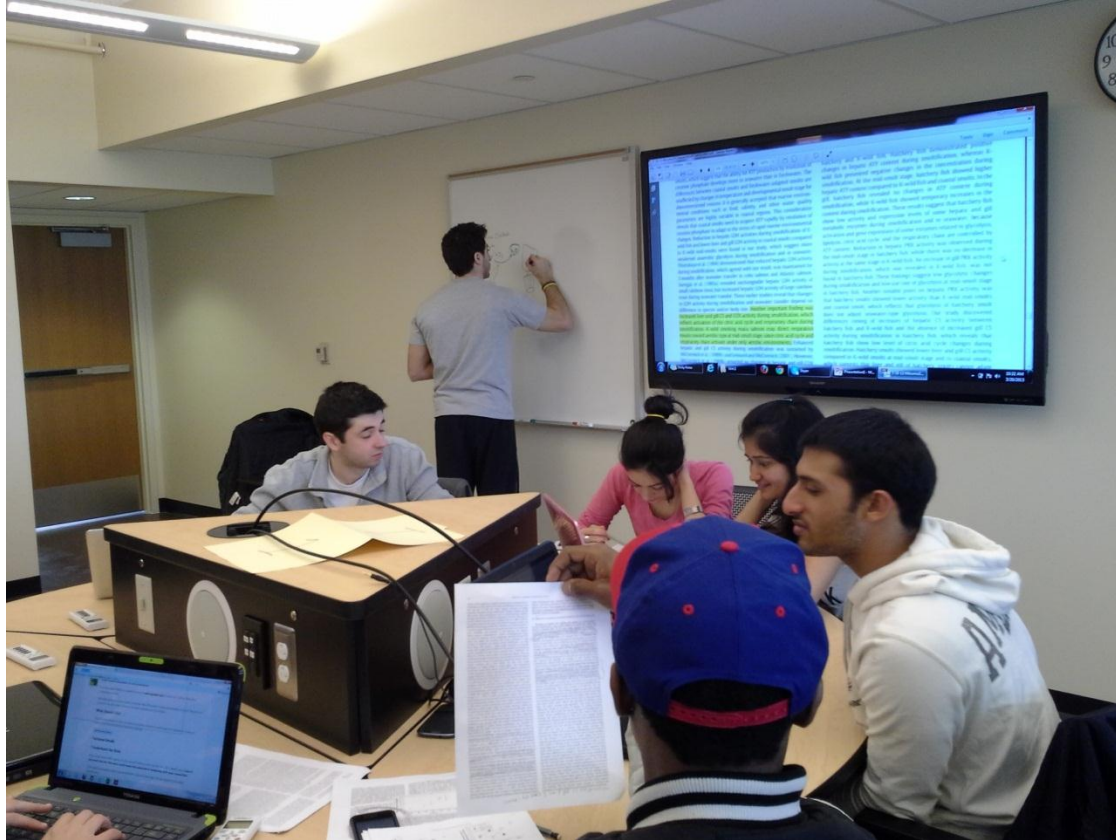
## 2010-2012

- Echo360 lecture capture installed in 136 classrooms
- Old Main: 33 rooms' faculty stations upgraded
- General Lectures 100: room totally upgraded
- State Hall: 47 rooms renovated and upgraded
- Manoogian: 8 rooms renovated and upgraded

## 2012-2013

- State Hall: fourth floor renovated; 11 new classrooms
- State Hall: 4 new rooms created on 3<sup>rd</sup> floor
- Purdy / Kresge: 4 rooms upgraded
- Site license for ECHO 360 personal capture, 55 users
- Wi-Fi capacity expanded in State Hall

# State Hall 425 Classroom



# 2013-2014 Next Steps

## Classroom Upgrades:

- 150 General Lectures
- 046 & 146 DeRoy
- 1 lecture hall in Manoogian Hall
- 2<sup>nd</sup> floor Manoogian in construction planning phase
- 5 Lecture halls in Science Hall
- 8 lecture halls in State Hall
- 5 General Purpose Classrooms in Education
- 1 General Purpose Classroom in Shapero

# **Student-Centered Instruction at WSU: WSU-WIDER Program**

**(Widening Implementation and Demonstration of Evidence-Based Reforms)**

**Matt Ouellett, EdD  
Director of OTL and Assoc. Provost**

**and**

**Andrew Feig, PhD  
Associate Professor, Chemistry**

**Academic Senate Presentation  
Sept. 16, 2013**

## **Introductions**

**National backdrop regarding teaching and learning**

**Externally funded initiatives at Wayne State related to teaching and learning**

- **WSU-WIDER Program**
- **Supported by a \$250K grant from NSF**

**Matt Ouellett**

2006 – 2010 - Multicultural Scholars Grant Higher Education Program. Grant from USDA

2012 – Professional and Organizational Development Network in Higher Education Lifetime Achievement Award for Faculty Development

2013 – 2014 - *Center for the Integration of Research, Teaching & Learning (CIRTL) for the Nation: A Growth Plan*. Grant from NSF

2005 – 2008– President of Professional and Organizational Development Network in Higher Education

**Andrew Feig**

2002 – Cottrell Scholar Award

2004 – 2006 HHMI Educational Grant (at IU, co-PI with Lynda Delph)

Founder of the IFLE Program – Integrated Freshman Learning Experience

2012 – Collaboration with AAU on STEM Education Initiative

2012 – Founder, CSC New Faculty Workshop in Chemistry

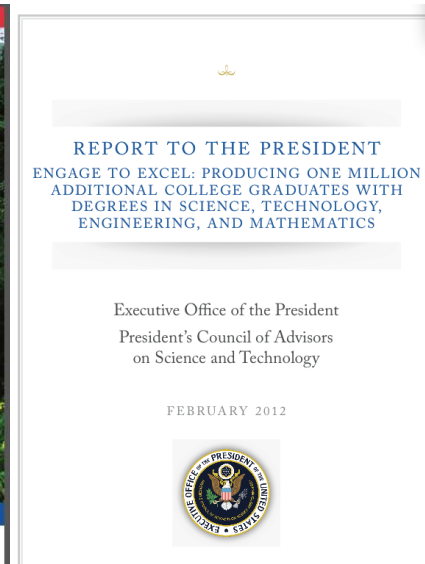
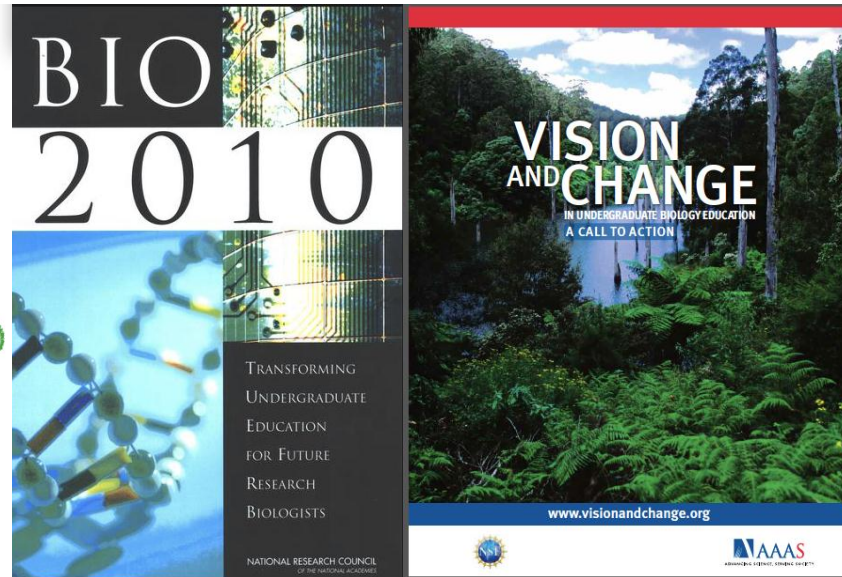
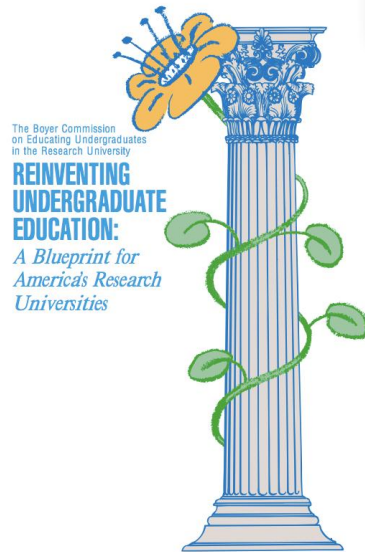
2012 – CLAS Teaching Award

2013 – President's Award for Excellence in Teaching

2013 - 2015 – PI: WSU-WIDER Grant from NSF



**Why is there a disparity between what education researchers have discovered about the practices that promote good learning and what most faculty actually do in college classrooms despite repeated calls for change?**



- **Presidential Council of Advisors for Science and Technology (PCAST)**
- **WSU institutional priorities align with PCAST report goals**
  - Improve graduation rates and STEM persistence
  - Provide opportunities for diverse students
  - Give all students the best possible education for their tuition dollars
  - Enhance economic opportunities for graduates

- **Recommendation 1:**  
Catalyze wide-spread adoption of evidence-based teaching
- **Recommendation 2:**  
Replace traditional lab classes with discovery-based labs (project labs)
- **Recommendation 3:**  
Improve post-secondary mathematics education to close the “Math Gap”
- **Recommendation 4:**  
Spur greater partnership among STEM stakeholders  
(universities/students/employers)
- **Recommendation 5:**  
Create a presidential advisory council on STEM education

### **Issues for faculty and university administration**

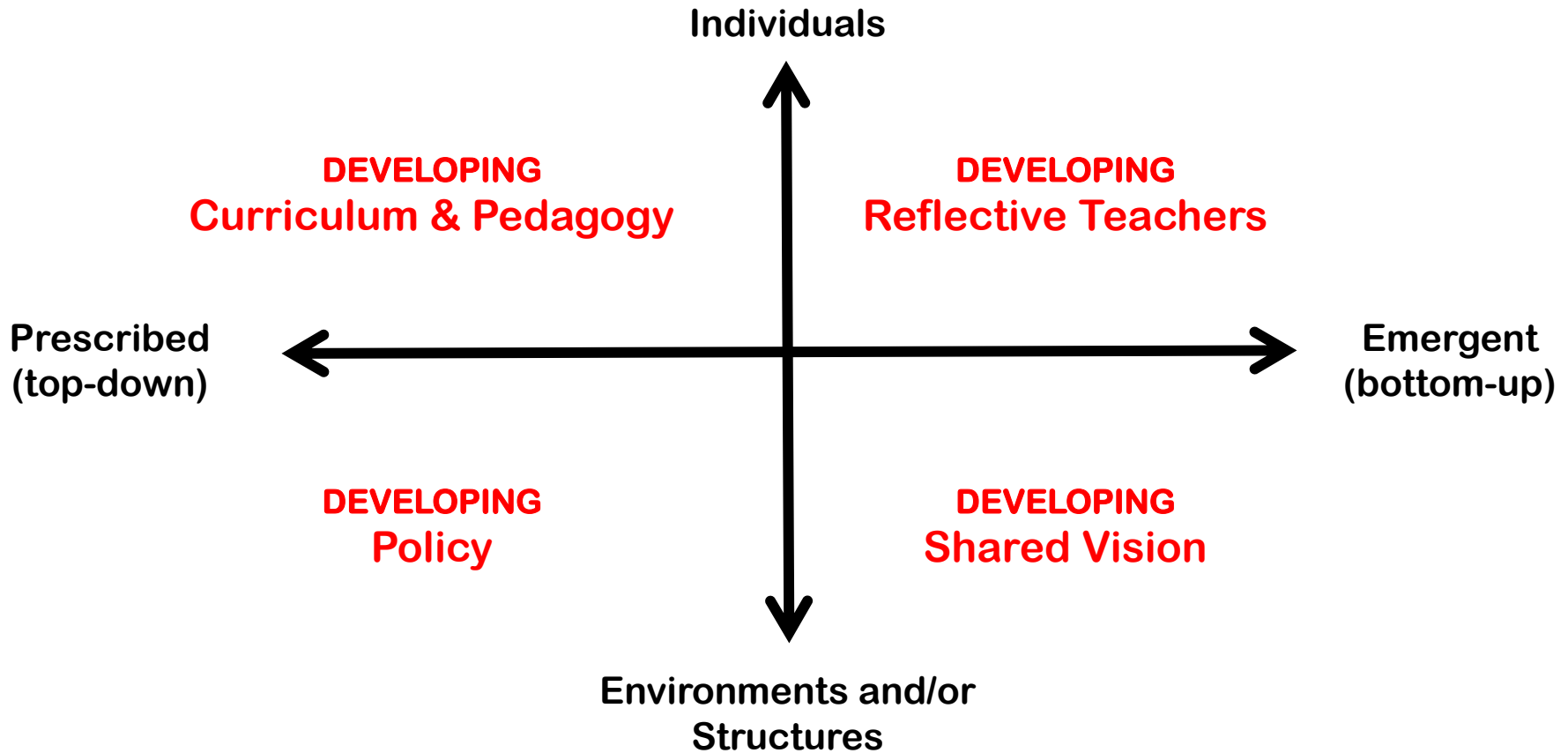
- Institutional reward structure at universities favors research over teaching
- Many faculty lack knowledge regarding evidence-based teaching methods

### **Student perception and desirability of STEM majors**

- STEM majors have lower GPAs than non-STEM majors
- STEM courses are perceived as being more difficult and having higher workloads
- Many 2-year colleges where students start their college work do not have full programs in STEM disciplines

**Wayne State faces these same challenges providing opportunities for growth**

Successful, lasting change requires contributions from all stakeholders



C. Henderson, A. Beach, and N. Finkelstein, "Four Categories of Change Strategies for Transforming Undergraduate Instruction, Transitions and Transformations in Learning and Education.

Table 2. Types of active learning that have been demonstrated to enhance learning.

| Types of active learning with feedback             | Examples of studies that demonstrate enhanced learning   |
|--|--|
| <b>Small group discussion and peer instruction</b> | Anderson et al. (2005); Armbruster et al. (2009); Armstrong et al. (2007); Beichner et al. (1999); Born et al. (2002); Crouch and Mazur (2001); Fagen (2002); Lasry et al. (2008); Lewis and Lewis (2005); McDaniel (2007a, 2007b); Rivard and Straw (2000); Tessier (2004 and 2007); Tien et al. (2002) |
| <b>Testing</b>                                     | Steele (2003)  |
| <b>One-minute papers</b>                           | Almer et al. (1998); Chizmar and Ostrosky (1998); Rivard and Straw (2000)  |
| <b>Clickers</b>                                    | Smith et al. (2009, 2011)  |
| <b>Problem-based learning</b>                      | Capon and Kuhn (2004); Preszler et al. (2007)  |
| <b>Case Studies</b>                                | Preszler (2009)  |
| <b>Analytical challenge before lecture</b>         | Schwartz and Bransford (1998)  |
| <b>Group tests</b>                                 | Cortright et al. (2003); Klappa (2009)   |
| <b>Problem sets in groups</b>                      | Cortright et al. (2005)  |
| <b>Concept mapping</b>                             | Foncesca et al. (2004); Prezler (2004); Yarden et al. (2004)   |
| <b>Writing with peer review</b>                    | Pelaez (2002)  |
| <b>Computer simulations and games</b>              | Harris et al. (2009); McDaniel et al. (2007); Traver et al. (2001)   |
| <b>Combination of active learning methods</b>      | Freeman et al. (2007); O'Sullivan and Cooper (2003)  |

Full report can be found at:

[http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final\\_2-25-12.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final_2-25-12.pdf)

## **Widening Implementation and Demonstration of Evidence-Based Reforms (WIDER)**

- **NSF's program to implement Engage to Excel recommendations**

### **Programmatic Goals**

- **Improve student learning through implementation of evidence-based teaching methods (EBTMs)**
- **Increase population of STEM majors in college, especially among under-represented groups**
- **Improve retention in the first 2 years of STEM majors**

**NSF WIDER proposal was funded (Started 9/15/13)**

**WSU-WIDER Team:**

**Biology – Karen Myhr**

**Chemistry – Andrew Feig**

**Math – Bob Bruner**

**Physics – Peter Hoffmann**

**Education – Asli Koca**

**OTL – Matt Ouellett**

**External evaluators:**

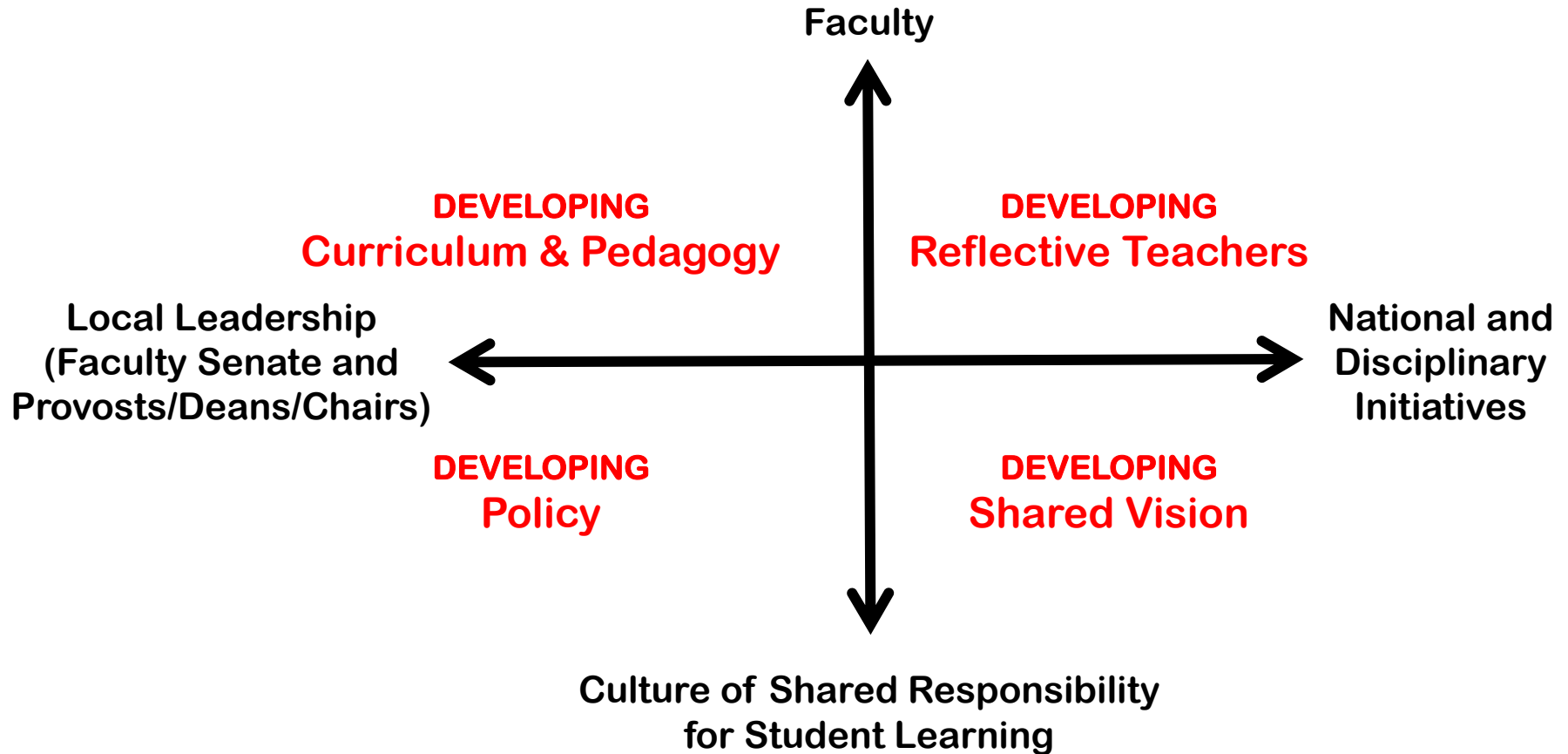
**Brian Coppola – Chemistry, University of Michigan**

**Diane Ebert-May – Biology, Michigan State University**



## **Aims for the WSU WIDER Grant**

- 1) Assess current classroom practices of WSU STEM**
- 2) Offer professional development**
- 3) Measure program progress through longitudinal tracking of student success and effective implementation of evidence-based pedagogies by faculty**
- 4) Prepare a final report on the opportunities and challenges for broad implementation of EBTMs across WSU STEM disciplines**
  - Focus point for discussions regarding STEM teaching practices
  - Preparation for future grant opportunities from NSF



Please encourage colleagues to participate in the WSU-WIDER survey.  
- disseminated on 9/30/13

**Help make effective teaching and student success a priority at WSU:**

- Participate in the baseline and subsequent surveys
- Attend workshops and professional development events in your departments and across campus

**Make good teaching visible:**

- Support institutional policy revisions that recognize innovative teaching and promote student learning
- Engage colleagues in discussion of peer observation of teaching to make this policy effective, formative, and developmental

**Questions?  
Comments?  
Input?**

**VOLUNTEERS?**

**For more information see:**

**[http://www.otl.wayne.edu/grantsresearch\\_wsuwider.php](http://www.otl.wayne.edu/grantsresearch_wsuwider.php)**