From Data to Faculty Development: Locate, Understand, and Use Data for Effective Institutional Change

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Bridgewater State University
June 11, 2014
An Outline

1. Data sources available at all campuses: why were these found relevant at BSU?
2. Faculty Development at BSU: how has it been data driven?
3. New data or analysis that can improve your local understanding
4. Develop preliminary action plans for improving data use
Questions to Consider

• How do you currently use data in your initiative/on your campus?
• What types of Faculty Development are you currently supporting on your campus?
• What are your greatest challenges and opportunities around Faculty Development and data?
DATA RESOURCES
IPEDS is the Integrated Postsecondary Education Data System. It is a system of interrelated surveys conducted annually by the U.S. Department’s National Center for Education Statistics (NCES). IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. The Higher Education Act of 1965, as amended, requires that institutions that participate in federal student aid programs report data on enrollments, program completions, graduation rates, faculty and staff, finances, institutional prices, and student financial aid. These data are made available to students and parents through the College Navigator college search Web site and to researchers and others through the IPEDS Data Center.

http://nces.ed.gov/ipeds/
Data in the IPEDS Data Center

- Retention Rates
- Graduation Rates
- Financial Aid including Pell Grants
- Enrollment
- Admissions
- Degrees Granted by area

http://nces.ed.gov/ipeds/

Download data on own school, or compare with other schools
The implication is that national requirements already require that you identify several key groups.

The key is to begin to connect those data to other data you have.
Data You Have Now: Course Grades

General Biology I
Calculus I
General Physics I
Chemical Principles I
Computer Science I

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Data You Have Now:
Department Continuation Rates

### Biology Freshmen (all)

<table>
<thead>
<tr>
<th>Initial Cohort</th>
<th>Still Enrolled (the succeeding Fall)</th>
<th>Not Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Same Major</td>
<td>Diff Maj - STEM</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>65</td>
<td>45</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>98</td>
<td>57</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>104</td>
<td>61</td>
</tr>
</tbody>
</table>

### Biology Sophomores (all)

<table>
<thead>
<tr>
<th>Initial Cohort</th>
<th>Still Enrolled (the succeeding Fall)</th>
<th>Not Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Same Major</td>
<td>Diff Maj - STEM</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>89</td>
<td>60</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>85</td>
<td>53</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>96</td>
<td>65</td>
</tr>
</tbody>
</table>
Data You Have Now (at least partially): Intersection of At-Risk Groups

First Generation (47.2%) (n=685)

- First Generation/Students of Color (11.7%) (n=170)
- First Generation/Low Income/Students of Color (8.9%) (n=129)
- Low Income/Students of Color (37.4%) (n=543)

- First Generation/Low Income Students (23.3%) (n=339)
- Low Income/Students of Color (13.4%) (n=195)

Prepared by the Office of Institutional Research

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DATA DRIVEN
FACULTY DEVELOPMENT
Strong History of Pedagogy

Early on . . . before data
• WAC
• Core Curriculum
• CART May Celebration
• Undergraduate Research
• Coordination of Writing faculty

Later on . . . after data
• Project Compass
• Community of Practice
• Office of Teaching & Learning
• STREAMS & Gateways Grants

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Intervention Strategies: Selling Faculty on Diversity Related Activity

Proven Strategies Underserved Students

Proven STEM Strategies

Nearly Total Overlap

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Two BSU examples: How we use data to inform retention/success rates

• Gateways Grant
• STREAMS
Gateways

• Purpose: Improve student success by increasing learning outcomes acquisition in key intro, or “gateway,” courses

• Strategy:
  1. Departments select “gateway” course, determine learning outcomes, and develop new pedagogical approaches. Grant supports outcomes development, creation of new learning environments, assessment.
  2. Use experienced, trained undergraduate peer leaders in small group, inquiry-based structured learning activities.
STREAMS (NSF-DUE 0969109)

• Retain more students in math and science majors to generate more STEM graduates
• Target resources for student success in gateway courses
• Track retention within major
## Fall 2011 to 2012 retention by course grade

<table>
<thead>
<tr>
<th>Course (Fall 2011)</th>
<th>Overall Retention of Majors</th>
<th>B- or better</th>
<th>C- or better</th>
<th>D, F, W, I</th>
<th>DFWI Rate for Majors</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 121</td>
<td>72%</td>
<td>87%</td>
<td>77%</td>
<td>39%</td>
<td>18%</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>74%</td>
<td>84%</td>
<td>83%</td>
<td>25%</td>
<td>11%</td>
</tr>
<tr>
<td>MATH 161</td>
<td><strong>60%</strong></td>
<td>87%</td>
<td>78%</td>
<td>8%</td>
<td><strong>26%</strong></td>
</tr>
<tr>
<td>PHYSICS 243 / 244</td>
<td>73%</td>
<td>75%</td>
<td>80%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>COMP 151</td>
<td><strong>46%</strong></td>
<td>62%</td>
<td>63%</td>
<td>15%</td>
<td><strong>35%</strong></td>
</tr>
<tr>
<td>Total</td>
<td>65%</td>
<td>82%</td>
<td>76%</td>
<td>27%</td>
<td>22%</td>
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</tbody>
</table>
Data Frontiers

At a micro-level – like a department or program – can you determine
• which students leave,
• when they leave,
• why they leave, and
• what could have helped them stay?
MiSA – Missing Student Analysis

Number of Graduates in 6 Years
(of a given group)

Number of Students Who
Begin a 4th Year of Studies
(of that given group)
MiSA – Students of Color

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<table>
<thead>
<tr>
<th>1st Gen</th>
<th>SOC</th>
<th>M / F</th>
<th>Pell el</th>
<th>BIO 121</th>
<th>BIO 121 GRADE</th>
<th>BIO 122</th>
<th>BIO 122 GRADE</th>
<th>BIO 200</th>
<th>BIO 200 GRADE</th>
<th>BIO 321</th>
<th>BIO 321 GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>no</td>
<td>M</td>
<td>no</td>
<td>fall 11</td>
<td>C+</td>
<td>spring 12</td>
<td>C+</td>
<td>spring 13</td>
<td>D+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>yes</td>
<td>M</td>
<td>yes</td>
<td>fall 11</td>
<td>B</td>
<td>spring 12</td>
<td>B-</td>
<td>spring 13</td>
<td>C-</td>
<td>fall 13</td>
<td>C</td>
</tr>
<tr>
<td>no</td>
<td>no</td>
<td>F</td>
<td>no</td>
<td>fall 11</td>
<td>A</td>
<td>spring 12</td>
<td>B</td>
<td>spring 13</td>
<td>B+</td>
<td>fall 13</td>
<td>B-</td>
</tr>
<tr>
<td>yes</td>
<td>yes</td>
<td>F</td>
<td>no</td>
<td>fall 11</td>
<td>C+</td>
<td>spring 12</td>
<td>C-</td>
<td>spring 13</td>
<td>C-</td>
<td>fall 13</td>
<td>F</td>
</tr>
</tbody>
</table>

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Action Plans

• Review questions from slide 3
• Partner up. Complete preliminary actions plans for accessing, understanding, and using data to shape and enhance faculty development and student success at home institutions (35 minutes)
Sharing/Troubleshooting
Resources on Thumbdrive

• Text of the Gateways Grant
• Annotated Bibliography for various forms of structured learning assistance, supplemental instruction
• IPEDS single institution report for Bridgewater State University (an example of data available)
• IPEDS starter instructions useful for complete novices