Efficacy of the California Basic Skills Initiative

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Efficacy of the California Basic Skills Initiative

- What are Basic Skills?
- Why should we be concerned about Basic Skills?
- What is the purpose of the BSI?
- How did the BSI work? What were its components?
- What affects student success?
- Research Questions
- Methodology
- Results
- Conclusion
Basic Skills

Basic skills are those foundation skills in reading, writing, mathematics, and English as a Second Language, as well as learning skills and study skills, which are necessary for students to succeed in college-level work.
Scope

• California will need at least 1 million more college graduates by 2025 (Johnson & Sengupta, 2009)
  – Even more if you include AA & Certificates (Tierney & Hentschke, 2011; Lumina Foundation, 2013)

• CCCs serve 69% of California college students
  – 11% CSU, 5% at UC (IPEDS, 2013)
    • 43% of CSU & UC graduates are CCC transfers (CCCCO, 2012)

• Up to 70% of students need English remediation
• Up to 90% of students need math remediation (CCC Student Success Taskforce, 2012)
The Basic Skills Initiative (BSI)

• BSI (2007)
  – Research
    • *Basic Skills as a Foundation for Student Success in California Community Colleges* (Poppy Copy)
  – Resources
    • Per FTE funding; $100K min first 2 years, $90K subsequent years
  – Support
    • Websites
    • Professional Development Grant
      – 3CSN
Basic Skills as a Foundation

• Reviewed over 250 studies
• Visited 33 CCCs, 9 out of state colleges

Results
  – 26 recommendations
  – 4 categories
    • Organizational and Administrative Procedures
    • Program Components
    • Professional Development
    • Instructional Practices
Integrated Model of Student Success

Student  --  Assessment  --  Academic  --  Social  --  Integration  --  Graduate

Support  --  Integration  --  College Expectations

Environment
Orientation, assessment, and placement are mandatory for all new students. Regular program evaluations are conducted, results are disseminated widely, and data are used to improve practice.

A comprehensive system of support services exists, and is characterized by a high degree of integration among academic and student support services.

The developmental education program addresses holistic development of all aspects of the student. Attention is paid to the social and emotional development of the students as well as to their cognitive growth.

Sound principles of learning theory are applied in the design/delivery of courses in the developmental program.

A clearly articulated mission based on a shared, overarching philosophy drives the developmental education program. Clearly specified goals and objectives are established for developmental courses and programs.
Problems

• One source found that only a quarter of students enrolling in a basic reading class ever enroll in transfer-level English, and only 10% of students enrolling in basic math end up in transferable math (Center for Student Success, 2005).

• But with the current state of knowledge and data, no one, absolutely no one, has any idea about which reasons are more important than others, and no one has the quantitative data that might enable a statistical analysis of which causes are more important.

(Grubb & Gabriner, 2013)
Research Questions

1. Has the California Basic Skills Initiative had a positive impact on getting students through basic skills coursework to college-level coursework in mathematics and English composition?

2. Were there particular practices, as outlined in the *Basic Skills as a Foundation for Student Success in California Community Colleges*, which effectively improved student success in basic skills as defined in question 1?

3. Are there colleges that have been unidentified or unrepresented in the current literature that had unexpectedly high gains in improving student success in basic skills as defined in question 1?
Methodology: Question 1

• Datasets
  – CCCCOCO MIS Data
    • Cohorts: 2-years to complete “college level” coursework
    • Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010
    • ~85,000/cohort English, ~78,000/cohort math
  – CCCCOCO Data Mart
    • College Demographics
    • College enrollment
  – US Census Bureau
  – BSI Annual College Expenditure reports
    • 2008, 2009, 2010
Methodology: Question 1

- **Survey**
  - College Practices
    - *Basic Skills as a Foundation for Student Success in the California Community Colleges* (2007)
    - *Basic Skills Completion* (2013)
    - Electronic Survey – January/February 2014

- **Linear Regression**
  - Dependent Variable: Percent improvement
Linear Regression

$y = 1.006x + 1.3681$

Dependent Variable

Independent Variables
Methodology: Question 2

• Two methods:
  – Catalog significant practices from regression model
  – Significant correlations with the improvement rate
Methodology: Question 3

- Calculate the residuals for each college based on the linear regression models produced to answer question 1
  - Positive residuals = exceed prediction
  - Negative residuals = fail to meet prediction
Residuals

Dependent Variable

Independent Variables

\[ y = 1.006x + 1.3681 \]

-1.89
1.60
Data

2 x 2
• Subjects
  – English
  – Math
• Datasets
  – 33 Survey Respondents
  – 112 CCCs
Representativeness

33 Colleges

• 45 Survey respondents
  – Removed repeats and unfinished surveys

• Representativeness
  – ~29% of students in CCCs
  – No significant demographic differences
  – Regionally representative
Has the California Basic Skills Initiative had a positive impact on getting students through basic skills coursework to college level coursework in mathematics and English composition?

**CCC Students Successfully Completing College Level**

- **Math**
  - Fall 2006: 18.69%
  - Fall 2007: 19.50%
  - Fall 2008: 19.45%
  - Fall 2009: 19.77%
  - Fall 2010: 21.09%

- **English**
  - Fall 2006: 30.87%
  - Fall 2007: 31.77%
  - Fall 2008: 31.94%
  - Fall 2009: 32.34%
  - Fall 2010: 33.97%

- **BSI Begins**
  - Fall 2006:
  - Fall 2007: 2,705
  - Fall 2008: 3.1%
  - Fall 2009: 2.4%
  - Fall 2010: 1,967
### English33: Predictors of the Improvement Rate for Developmental English

<table>
<thead>
<tr>
<th>Statistically Significant Variables</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year success rate for all 2006 cohort in developmental English</td>
<td>-0.3850***</td>
</tr>
<tr>
<td>Amount spent on articulation from the 2008 BSI allocation</td>
<td>0.0018***</td>
</tr>
<tr>
<td>County median income</td>
<td>0.0004***</td>
</tr>
<tr>
<td>Proportion of students identifying as unknown</td>
<td>-74.4433***</td>
</tr>
<tr>
<td>Proportion of students identifying as American Indian</td>
<td>286.2584**</td>
</tr>
<tr>
<td>Percent of 2008 BSI allocation spent on counseling or advising</td>
<td>-0.1515**</td>
</tr>
<tr>
<td>Percent of 2010 BSI allocation spent on program development</td>
<td>-0.1287*</td>
</tr>
<tr>
<td>Percent of 2010 BSI allocation spent on articulation</td>
<td>-1.8083**</td>
</tr>
<tr>
<td>Residual articulation expenditure from the 2010 allocation</td>
<td>-0.3030**</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.124</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, n=33, R^2=0.841

### English112: Predictors of the Improvement Rate for Developmental English

<table>
<thead>
<tr>
<th>Statistically Significant Variables</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year success rate for all 2006 cohort</td>
<td>-0.2464***</td>
</tr>
<tr>
<td>Amount spent on articulation from the 2008 BSI allocation</td>
<td>0.0006**</td>
</tr>
<tr>
<td>Percent of the 2008 BSI allocation spent on assessment</td>
<td>0.3240**</td>
</tr>
<tr>
<td>Amount spent on articulation from the 2009 BSI allocation</td>
<td>-0.0003*</td>
</tr>
<tr>
<td>Amount spent on equipment and materials from the 2009 BSI allocation</td>
<td>-0.0001*</td>
</tr>
<tr>
<td>Proportion of students identifying as unknown</td>
<td>17.1533**</td>
</tr>
<tr>
<td>Constant</td>
<td>13.9055</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, R^2=0.342
### Math33: Predictors of the Improvement Rate for Developmental Math

<table>
<thead>
<tr>
<th>Statistically Significant Variables</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year success rate for fall 2006 cohort in developmental math</td>
<td>-0.52360***</td>
</tr>
<tr>
<td>Proportion of full-time students</td>
<td>34.99990**</td>
</tr>
<tr>
<td>Proportion of basic-skills FTES</td>
<td>-89.63959**</td>
</tr>
<tr>
<td>Level of developmental faculty involvement in professional development</td>
<td>2.89229*</td>
</tr>
<tr>
<td>Total program development expenditure ($) 2008-2010</td>
<td>-0.00002*</td>
</tr>
<tr>
<td>Total equipment and materials expenditure ($) 2008-2010</td>
<td>-0.00006*</td>
</tr>
<tr>
<td>Constant</td>
<td>4.26869</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, n=33, R²=0.677

### Math12: Predictors of the Improvement Rate for Developmental Mathematics

<table>
<thead>
<tr>
<th>Statistically Significant Variables</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year success rate for fall 2006 cohort in developmental math</td>
<td>-0.7160***</td>
</tr>
<tr>
<td>Proportion of students identifying as African American</td>
<td>-29.7520**</td>
</tr>
<tr>
<td>Proportion of students identifying as American Indian</td>
<td>847.1545***</td>
</tr>
<tr>
<td>Proportion of students identifying as Multi-ethnic</td>
<td>224.4912***</td>
</tr>
<tr>
<td>Proportion of students identifying as White</td>
<td>-25.8580***</td>
</tr>
<tr>
<td>Proportion of full-time students</td>
<td>31.6386**</td>
</tr>
<tr>
<td>Amount of expenditures (2010) per headcount</td>
<td>0.0336*</td>
</tr>
<tr>
<td>Amount spent on articulation from the 2010 BSI allocation</td>
<td>0.0002**</td>
</tr>
<tr>
<td>Percent of 2010 BSI allocation spent on coordination</td>
<td>-0.1093*</td>
</tr>
<tr>
<td>County median income</td>
<td>0.0002**</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.40128</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, R²=0.652
Were there particular practices, as outlined in the *Basic Skills as a Foundation for Student Success in California Community Colleges*, which effectively improved student success in basic skills as defined in question one?

**English**
- Linear Regression
  - None
- Correlation
  - Counseling integrated into developmental coursework ($R=0.369$, $p=0.035$)
  - *Reading Apprenticeship* ($p=0.057$)

**Mathematics**
- Linear Regression
- Developmental Education Faculty involved in Professional Development
- Correlation
  - None
  - *Degree to which colleges offer orientation* ($p=0.063$)

"We are not interested in the logic itself, nor will we argue for replacing the .05 alpha with another level of alpha, but at this point in our discussion we only wish to emphasize that dichotomous significance testing has no ontological basis. That is, we want to underscore that, surely, God loves the .06 nearly as much as the .05. Can there be any doubt that God views the strength of evidence for or against the null as a fairly continuous function of the magnitude of $p$?" - Rosnow, R.L. & Rosenthal, R. (1989).
### Practices

Please rate the degree to which your college has adopted the following curricular practices in developmental ENGLISH courses:

<table>
<thead>
<tr>
<th>Practise</th>
<th>Not adopted</th>
<th>Considered, but not adopted it</th>
<th>Piloted on a small scale</th>
<th>Piloted on a large scale</th>
<th>Adopted permanently by FEW faculty</th>
<th>Adopted permanently by SOME faculty</th>
<th>Adopted permanently by MANY faculty</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated Curriculum</td>
<td>18%</td>
<td>21%</td>
<td>15%</td>
<td>9%</td>
<td>6%</td>
<td>15%</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td>Contextualized Instruction</td>
<td>12%</td>
<td>18%</td>
<td>27%</td>
<td>3%</td>
<td>12%</td>
<td>15%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>First Year Experience Programs</td>
<td>18%</td>
<td>15%</td>
<td>30%</td>
<td>9%</td>
<td>3%</td>
<td>18%</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>Learning Communities</td>
<td>6%</td>
<td>6%</td>
<td>45%</td>
<td>3%</td>
<td>15%</td>
<td>18%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Summer Bridge Programs</td>
<td>24%</td>
<td>18%</td>
<td>30%</td>
<td>0%</td>
<td>12%</td>
<td>6%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>&quot;Flipped&quot; Classrooms</td>
<td>36%</td>
<td>21%</td>
<td>18%</td>
<td>0%</td>
<td>9%</td>
<td>9%</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>Habits of Mind</td>
<td>30%</td>
<td>12%</td>
<td>21%</td>
<td>0%</td>
<td>21%</td>
<td>6%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Reading Apprenticeship</td>
<td>21%</td>
<td>12%</td>
<td>27%</td>
<td>3%</td>
<td>18%</td>
<td>9%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Collaborative Learning</td>
<td>9%</td>
<td>9%</td>
<td>15%</td>
<td>0%</td>
<td>24%</td>
<td>18%</td>
<td>18%</td>
<td>6%</td>
</tr>
<tr>
<td>Problem Based Learning</td>
<td>24%</td>
<td>30%</td>
<td>6%</td>
<td>0%</td>
<td>15%</td>
<td>15%</td>
<td>3%</td>
<td>6%</td>
</tr>
</tbody>
</table>
Expenditures – English

Linear Regression

- $\text{English}_{33}$
  - Amount spent on articulation from the 2008 BSI allocation
  - Percent of 2008 BSI allocation spent on counseling or advising
  - Percent of 2010 BSI allocation spent on program development
  - Percent of 2010 BSI allocation spent on articulation
  - Residual articulation expenditure from the 2010 allocation

- $\text{English}_{112}$
  - Amount spent on articulation from the 2008 BSI allocation
  - Percent of the 2008 BSI allocation spent on assessment
  - Amount spent on articulation from the 2009 BSI allocation
  - Amount spent on equipment and materials from the 2009 BSI allocation

Correlation

- $\text{English}_{112}$
  - Amount spent on articulation from the 2008 BSI allocation ($R=0.216$, $p=0.023$)
  - Proportion spent on articulation from the 2008 allocation ($R=0.235$, $p=0.013$)
  - Proportion spent on assessment in 2008 ($R=0.228$, $p=0.016$)
  - Proportion spent on advising in 2009 ($R=0.248$, $p=0.009$)
  - Proportion spent on advising in 2010 ($R=0.241$, $p=0.011$)
  - Amount spent on equipment and materials from the 2009 BSI allocation ($R=-0.207$, $p=0.029$)
  - Amount spent on coordination from the 2009 BSI allocation ($R=-0.0206$, $p=0.030$)
Expenditures – Mathematics

Linear Regression
• Math\textsubscript{33}
  • Total program development expenditure ($\) 2008-2010
  • Total equipment and materials expenditure ($\) 2008-2010

• Math\textsubscript{112}
  • Amount of expenditures (2010) per headcount
  • Amount spent on articulation from the 2010 BSI allocation
  • Percent of 2010 BSI allocation spent on coordination

Correlation
• Math\textsubscript{112}
  • Expenditure per Basic Skills Credit FTES (R=-0.235, p=0.013)
Are there colleges that have been unidentified or unrepresented in the current literature that had unexpectedly high gains in improving student success in basic skills as defined in question one?

<table>
<thead>
<tr>
<th>College</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berkeley City</td>
<td>7.27</td>
</tr>
<tr>
<td>Modesto Junior College</td>
<td>6.17</td>
</tr>
<tr>
<td>Cypress</td>
<td>5.97</td>
</tr>
<tr>
<td>Los Angeles Pierce</td>
<td>5.06</td>
</tr>
<tr>
<td>Allan Hancock</td>
<td>5.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodland</td>
<td>6.32</td>
</tr>
<tr>
<td>Los Angeles City College</td>
<td>6.12</td>
</tr>
<tr>
<td>Modesto Junior College</td>
<td>5.67</td>
</tr>
<tr>
<td>Citrus</td>
<td>2.7</td>
</tr>
<tr>
<td>Las Positas</td>
<td>2.66</td>
</tr>
</tbody>
</table>
Limitations

2-year time scale

Student Success
  – Underrepresented groups

Survey Questions
  – Simplistic interpretation of practices

Rate versus Volume
Limitations

Survey Response Rate

• 33/112 colleges ~30%
• No significant differences in any variables
• Geographic representation
• Survey methodology
  – 3 contacts
  – CCCCO maintained list
  – 25-60% response rate in literature
    (Greenlaw & Brown-Welty, 2009; Lefever, Dal, & Matthiasdottir, 2007; Nulty, 2008; Walt, Atwood, & Mann, 2008)
• Confidence Interval
  – +/- 5% is 87 colleges
Future Directions

Student Success and Support Program (SSSP)
• Integrated Counseling (English)
• Improved Assessment (Math)

Pedagogy/Andragogy
• Acceleration (English)
  – Requires coordination
• “Flipped Classroom” (Math)
  – Individual Faculty

Professional Development
• Developmental faculty involved (Math)
Future Directions

Coding
• Colleges should review coding of non-sequence courses

Reporting & Evaluation
• Greater intentionality in reporting requirements
  – CCCC is well positioned for research
  – Using existing tools has already produced useful data
    • Basic Skills Completion
Has the California Basic Skills Initiative had a positive impact on getting students through basic skills coursework to college level coursework in mathematics and English composition?

Yes, but…

• Modest improvement
• Need greater investment in student services
• Need pedagogical reform
  • Low practice adoption
• Need clear goals and expectations
• Need to better assess progress
• Need better support across colleges

…similar to what student success looks like
Were there particular practices, as outlined in the *Basic Skills as a Foundation for Student Success in California Community Colleges*, which effectively improved student success in basic skills as defined in question one?

Maybe.

- Integrated Counseling (English)
- Improved Assessment (Math)
- Acceleration (English)
- “Flipped Classroom” (Math)
- Developmental faculty involved in professional development (Math)
Are there colleges that have been unidentified or unrepresented in the current literature that had unexpectedly high gains in improving student success in basic skills as defined in question one?

Yes.

At a minimum…
1. Citrus College*
2. Los Angeles Pierce
3. Modesto Junior
Efficacy of the California Basic Skills Initiative

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