Innovation in Developmental Education: You Can’t Afford Not to Do Things Differently – And Here’s Why!

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Basic Skills as a Foundation for Student Success in California Community Colleges

http://www.cccbsi.org

June 2010 - Return on Investment
Data Summary

- 55%-85% of First Time Freshmen Require Developmental Education
- Less than 10% of students who start 3 or more levels below ever reach college-level
- Grades in sequenced courses study
- Most of these findings extremely consistent in last two decades
PART 2: DOING THINGS DIFFERENTLY
“The State of Developmental Education in California”

- What is the most common educational paradigm we deliver to our developmental education students?
  - One instructor
  - One classroom
  - Limited suite of support services
Hmm…

- What has the research suggested to be the least effective paradigm for producing student success in developmental education?
  - See previous slide 😊
Non-Traditional Approaches

• Programs exist on every campus
• Most include a number of the “Effective Practices” identified in the Literature Review
• IR data has demonstrated many as effective
• Tend to be small in scope, serving relatively small numbers of students
• Why?
Why are Non-Traditional Programs Isolated and Small?

- Limited awareness about the literature & its findings
- Need for paradigm shifts in thinking of campus administrators, faculty & staff
- Organizational change issues
- Lack of IR to provide hard data on program effectiveness
- “Pilot” mentality – often w/o institutional commitment
Single Biggest Reason?

• **Perceived Cost** of scaling these programs to many / most / all students
Societal Payback Angle

• Successful developmental education benefits society in measurable ways

• Economic: Census estimate that HS grads earn $1.2m, AA - $1.6m, BA – $2.1m

• Societal: more likely to be open-minded, culturally aware, make rational decisions, less authoritarian, increased health, positively affects offspring & family

• Moral imperative
Workplace Needs

- “Primary currency for employment became advanced education” (McCabe, 2000)
- Evolving workplace: 80% of jobs in 21st century will need advanced skills
- Manufacturing Association survey: 60% of employees lacked basic math skills & 55% basic written language / comprehension skills
Implications for Society

- Declines in educational standards
- Fierce competition for limited number of unskilled jobs
- Increases in unemployment rates, crime rates, and dependencies on social programs
- SES stratifications into haves / have not's – dwindling middle class
- Lack of skilled workforce to compete in global economy
But...

• Community Colleges have to pay their own bills. Thus, we are left with a situation where:
  – society demands that we succeed in our mission of developmental education,
  – but our funding system seems to suggest that we at the CCs can’t afford to do so
PART 3:
THE LOGIC BEHIND THE APPROACH
Traditional CC Economic Reality

• Community Colleges are set up to think in terms of fiscal periods (usually fiscal years)

• Simplistically, this year’s salaries, fixed costs, & variable costs seemingly need to be offset by this year’s revenues from FTES apportionment
A Different (?) Way of Thinking

- As has become common in industry, we could think about deviating from our “traditional” model toward a return-on-investment (ROI) approach.

- Under this approach, we use our “traditional” model as the baseline for costs and revenue.
Incremental Costs

• We first account for the additional costs associated with the aforementioned more successful alternative programs. Examples:
  – Incremental salaried faculty/staff (% FTE w / benefits)
  – Hourly personnel costs (tutors, etc)
  – Stipends
  – Equip / Supplies / Facilities

• Note: We are quite good at assigning incremental costs to non-traditional programs!
The Flip Side – Incremental Revenue

• Successful alternate programs have the following outcomes:
  – Increased course retention
  – Increased course success rates
  – Increased persistence
  – Increased progression to college-level work
  – Increase in overall units attempted / earned
What is the coin of the realm?

- FTES
- In California, colleges generate $4,361 per FTES in apportionment
- In other states, colleges also keep tuition and/or fee revenue
- The incremental FTES generated in successful alternative programs can, in many cases, offset the incremental costs
Caveat before we move on…

• This approach runs into an issue if a system caps apportionment funding and the college is at or near its enrollment cap
  – To our knowledge, only California does this
  – Somewhat ironic, given that this model was developed in California

• Further irony - the caps are based at least partially on historical failures in developmental education
  – Could flood the system with successful students
Incremental FTES $$$ Not Without Costs

• Instructional costs for students who are retained and progress – may require adding additional sections
  – May fill non-full classrooms especially in productive GE courses

• Overhead / infrastructure costs
  – Estimating is very complex

• Taken together, we estimate a range of 40%-75% “profit” from FTES
What the Model Doesn’t Do

• This is not a sophisticated economic model

• It doesn’t take into account economics concepts such as net present value (NPV), economic rates of return (IRR), discounting, etc.

• Ultimately, it is designed to be an order of magnitude demonstration
A Final Note Before Getting into It...

- In no way are we claiming that the current level of funding (CA: $4,361/FTES) for the “standard” suite of services is adequate – $11,000 for CSU, $25,000 for UC

- Spevak & Simpson et al (2003) – Real Cost Project – estimated “real cost” of providing instruction and services is over $9,000 per FTES
PART 4: A LIVE DEMONSTRATION OF THE EXCEL MODEL

(SEE APPENDIX A FOR STATIC EXPLANATION OF THE EXCEL MODEL)
PART 5:
THE AFTERMATH
The Bottom Line (Literally)

• In many cases, these supposedly expensive programs do pay for themselves
  – Real-world examples from Cerritos, Chaffey, De Anza & Foothill
  – Examples also applied to Illinois, Kansas, New York, Ohio, and Texas funding structures

• In some cases, they produce a net financial benefit for the college
The Soap Box

• We should be looking to expand these more successful non-traditional basic skills programs for moral, ethical, and societal reasons

• This approach suggests colleges also may have a financial incentive for doing so
Growing Pains

• As programs are expanded past their current small reach, they will likely experience some decrease in incremental success

• Flip side is that costs do not scale up proportionally – and this usually is a good thing as economies of scale emerge

• May balance each other out?
More Thoughts

• Single approach / program won’t work for our diverse student populations

• Mix of programs that are successful would potentially optimize these benefits

• Somewhat more expensive programs could be offset by more cost-effective alternatives in a menu-type approach
Questions? Comments?

• Excel model is available on the two websites:
  – http://css.rpgroup.org
  – http://www.cccbsi.org/

• Feel free to contact me at 650-738-4454 or johnstoner@smccd.edu for further discussion
APPENDIX A:
THE EXCEL MODEL
STATIC VERSION

June 2010 - Return on Investment
Overview of Model

• Seven Sections to Model
  – Sec. 1: Students Served in Program
  – Sec. 2: Incremental Salaried Personnel Costs
  – Sec. 3: Incremental Hourly Personnel Costs
  – Sec. 4: Incremental Fixed Costs
  – Sec. 5: Summary of Incremental Costs
  – Sec. 6: FTES Funding Assumptions
  – Sec. 7: Incremental FTES from Program

• Each section allows entry of real data and calculates key figures automatically
Section 1: Students Served

• Starting off easy

• Enter how many students are served in the program annually

• This is critical because it helps us determine the total FTES per student - which we’ll need later
# Model 3: Counseling and Time on Task at De Anza College's MPS Program

<table>
<thead>
<tr>
<th>Section 1: Students Served in Program</th>
<th>75</th>
</tr>
</thead>
</table>
Section 2: Salaried Personnel Costs

• Enter:
  – A. Position Title
  – B. FTE for Position
  – C. Salary

• Automatically Calculated:
  – D. Prorated Salary
  – E. Benefits at 35%*
  – F. Cost
### Section 2: Incremental Salaried Personnel Costs of Program

<table>
<thead>
<tr>
<th>A. Position Title</th>
<th>B. FTE</th>
<th>C. Salary</th>
<th>D. Prorated Salary</th>
<th>E. Benefits @ 35%</th>
<th>F. Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MPS Counselor</td>
<td>0.43</td>
<td>$70,000</td>
<td>$29,995</td>
<td>$10,498</td>
<td>$40,493</td>
</tr>
<tr>
<td>2. Math FTE for Double Load</td>
<td>0.33</td>
<td>$70,000</td>
<td>$23,331</td>
<td>$8,166</td>
<td>$31,497</td>
</tr>
<tr>
<td>3.</td>
<td></td>
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<td>6.</td>
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<tr>
<td>7.</td>
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</tr>
</tbody>
</table>

**Total Salaried Personnel Costs:** $71,990
Section 3: Hourly Personnel Costs

• Enter:
  – A. Type of hourly personnel
  – B. Number of hourly employees
  – C. Hourly rate
  – D. Annual Hours per Employee

• Calculated Automatically:
  – E. Cost

  • If you have a yearly line item, simply enter it directly in (E) and override the formulas
### Section 3: Incremental Hourly Personnel Costs

<table>
<thead>
<tr>
<th>A. Type of Hourly Personnel</th>
<th>B. No. of Hourly Employees</th>
<th>C. Hourly Rate</th>
<th>D. Annual Hours Per Employee</th>
<th>E. Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructor Stipends</td>
<td>14</td>
<td>$43.42</td>
<td>10</td>
<td>$6,079</td>
</tr>
<tr>
<td>2. Student Tutors</td>
<td>9</td>
<td>$7.75</td>
<td>96.33</td>
<td>$6,719</td>
</tr>
<tr>
<td>3. Student Tutors</td>
<td>3</td>
<td>$8.44</td>
<td>62.67</td>
<td>$1,587</td>
</tr>
<tr>
<td>4. Student Tutor</td>
<td>1</td>
<td>$9.21</td>
<td>60</td>
<td>$553</td>
</tr>
<tr>
<td>5. Student Tutor</td>
<td>1</td>
<td>$10.17</td>
<td>58.5</td>
<td>$595</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total Hourly Personnel Costs:</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$15,532</strong></td>
</tr>
</tbody>
</table>
### Section 3: Incremental Hourly Personnel Costs

<table>
<thead>
<tr>
<th>A. Type of Hourly Personnel</th>
<th>B. No. of Hourly Employees</th>
<th>C. Hourly Rate</th>
<th>D. Annual Hours Per Employee</th>
<th>E. Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student Tutors (Annual Budget)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$10,000</td>
</tr>
<tr>
<td>2.</td>
<td>2</td>
<td>2</td>
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</tr>
<tr>
<td>3.</td>
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<tr>
<td>4.</td>
<td>4</td>
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</tr>
<tr>
<td>5.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hourly Personnel Costs:** $10,000
Section 4: Fixed Costs

• Enter:
  – A. Description of Item
  – B. Annual Cost

• Equipment costs may be amortized

• Facilities costs are very tricky
  – Possibly no cost - how you use available space
  – Possibly large cost - adding a new building
  – Still tricky to assign to a non-traditional program, especially as they are systemized
## Section 4: Incremental Fixed Costs

<table>
<thead>
<tr>
<th>A. Item</th>
<th>B. Annual Cost/Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equipment</td>
<td>$12,141</td>
</tr>
<tr>
<td>2. Supplies</td>
<td>$20,290</td>
</tr>
<tr>
<td>3. Facilities</td>
<td>$0</td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Fixed Costs:</strong></td>
<td><strong>$32,431</strong></td>
</tr>
</tbody>
</table>
Section 5: Cost Summary

• Summary of sections 2, 3, & 4 – provides total annual cost of program
### Section 5: Incremental Cost Summary

<table>
<thead>
<tr>
<th>A. Item</th>
<th>B. Annual Cost/Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salaried Personnel Costs</td>
<td>$71,990</td>
</tr>
<tr>
<td>2. Hourly Personnel Costs</td>
<td>$10,000</td>
</tr>
<tr>
<td>3. Fixed Costs</td>
<td>$0</td>
</tr>
</tbody>
</table>

**Total Program Costs:** $81,990
A Note on Costs

• Most programs we refer to here have durations of an academic year or less
  – Examples include a learning community, a program to pass a specific class, or a program that supports a two-semester course sequence

• If program duration is longer than a year, then include multi-year costs instead of annual cost estimates
Section 6: FTES Funding

Assumptions

- Two key calculations in this section:
  1. Apportionment funding from state per FTES
  2. If college keeps all or a portion of the tuition & fees, you can enter the amount here.
  - Multiply the tuition/fees you keep per unit by 30 (if on semesters) or 45 (if on quarters) to get the amount of tuition / fees per FTES

- Theoretically possible to have other sources of funding that are incremental per FTES – happy to adjust model if you do...
### Section 6: FTES Funding Assumptions

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apportionment Funding from State per FTES</td>
<td>$2,265</td>
</tr>
<tr>
<td>2. Tuition/Fees Funding per FTES (30 units @ $65/unit)</td>
<td>$1,950</td>
</tr>
<tr>
<td><strong>Total Funding per FTES:</strong></td>
<td><strong>$4,215</strong></td>
</tr>
</tbody>
</table>
Section 7: Incremental FTES

• This is where the action is (OK, stop laughing)

• Calculates incremental FTES from the non-traditional program compared to a control group

• Need Institutional Research to use real-world data

• Can use as an exploratory “what-if” tool
Section 7.1

• Enter #1 - Students in Program Annually
Section 7.2

• Enter #2 - Subsequent FTES from Students in Program
  – FTES from students in the program in the semester/quarter they start the program and in subsequent semesters/quarters
  – This will need to come from your IR office, or you can estimate it for “what-if” modeling
  – Key note: not lifetime FTES – need to eliminate FTES before the quarter program starts
Section 7.3

• Enter #3 – # of students in control group
  – A control group needs to be identified to compare the tracking of subsequent FTES
  – Many methods of doing this
    • All students taking the same course not in program
    • Matched on demographic variables, units, etc
    • Work with researcher
  – Size of control group doesn’t matter
    • Model accounts for this automatically
    • Within reason – prefer not smaller than 50
Section 7.4

• Enter #4 – Subsequent FTES from Students in Control Group
  – Similar to #2
Section 7.5

- #5 is calculated automatically, and is darn nifty, if I do say so myself
- Adjusts automatically for different sized Control and Program groups
- A bit tricky, but the figure in this cell is what the difference in FTES would be if the control group was the same size as the program group
Section 7.6 - 7.7

- #6 & #7 are calculated automatically
- #6 - Percentage Increase in FTES from Program Group
- #7 - Calculates apportionment from additional FTES using the FTES funding amount from Section 6
Reflections on Section 7

• Important to note again that the total $$ figure produced in #7 is not free and clear; there are associated costs

• Could estimate the “profit” and calculate an industry-like ROI figure
  – E.g. for De Anza MPS, invest $81,990 a year, generate $213,357, estimate profit @ 50%, then ROI = \( \frac{106678 - 81990}{81990} = 30\% \) ROI
### Section 7: Incremental FTES from Program

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students in Program Annually</td>
<td>150</td>
</tr>
<tr>
<td>2. Subsequent FTES from Students in Program</td>
<td>324.5</td>
</tr>
<tr>
<td>3. Students in Control Group</td>
<td>150</td>
</tr>
<tr>
<td>4. Subsequent FTES from Students in Control Group</td>
<td>245.0</td>
</tr>
<tr>
<td>5. Incremental FTES from Students in Program</td>
<td>79.5</td>
</tr>
<tr>
<td>(N-adjusted to Program size)</td>
<td></td>
</tr>
<tr>
<td>6. Percentage Increase in FTES from Program</td>
<td>32%</td>
</tr>
<tr>
<td>7. Potential Revenue from FTES @ $3,966/FTES</td>
<td>$335,093</td>
</tr>
</tbody>
</table>