Evaluating Developmental Education Programs: A Proposed Model and Guidelines for Higher Education Administrators

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(Stepp – Childress Paper)

SRCEA Conference, Oklahoma City, OK
October 24 – 27, 2013

The Context

- Developmental students represent a target group for increased retention
- Traditional developmental education is not working
- Schools facing budget allocations based on performance must evaluate current practices to use funding efficiently and effectively
- 25% of high school students entering 4-year programs need math remediation; 26% need writing remediation
- Once admitted, schools are obligated to provide the needed remediation
- Students deserve effective programming

Statement of the Problem

- Developmental education programming should be based on documented best practices
- Schools are not effectively evaluating their developmental programs
- Those who do evaluate find mixed results
- Improving evaluation must be a priority

Purposes of the Study

- Evaluate, identify, and compare evaluation models
- Propose an evaluation model
- Implement an element of model
- Provide guidelines for evaluating developmental education programs

Literature Based Approach to Evaluating Developmental Education

- Logistic Regression
- Regression Discontinuity Analysis
- Experimental Design

Evaluating with Logistic Regression Analysis

- Explores relationship between dependent variable and one or more independent variable
- Factors that might affect persistence are determined: gender, race, age, financial status, type of high school, standardized test scores, high school GPA, math GPA and number of math courses taken

Evaluating with Regression Discontinuity Analysis

- Regression discontinuity assigns students with scores slightly below the established cut score to a treatment group and students with scores slightly higher to a control group
- Using this method remains ethical because students are not withheld from needed remediation
- A causal relationship can be determined

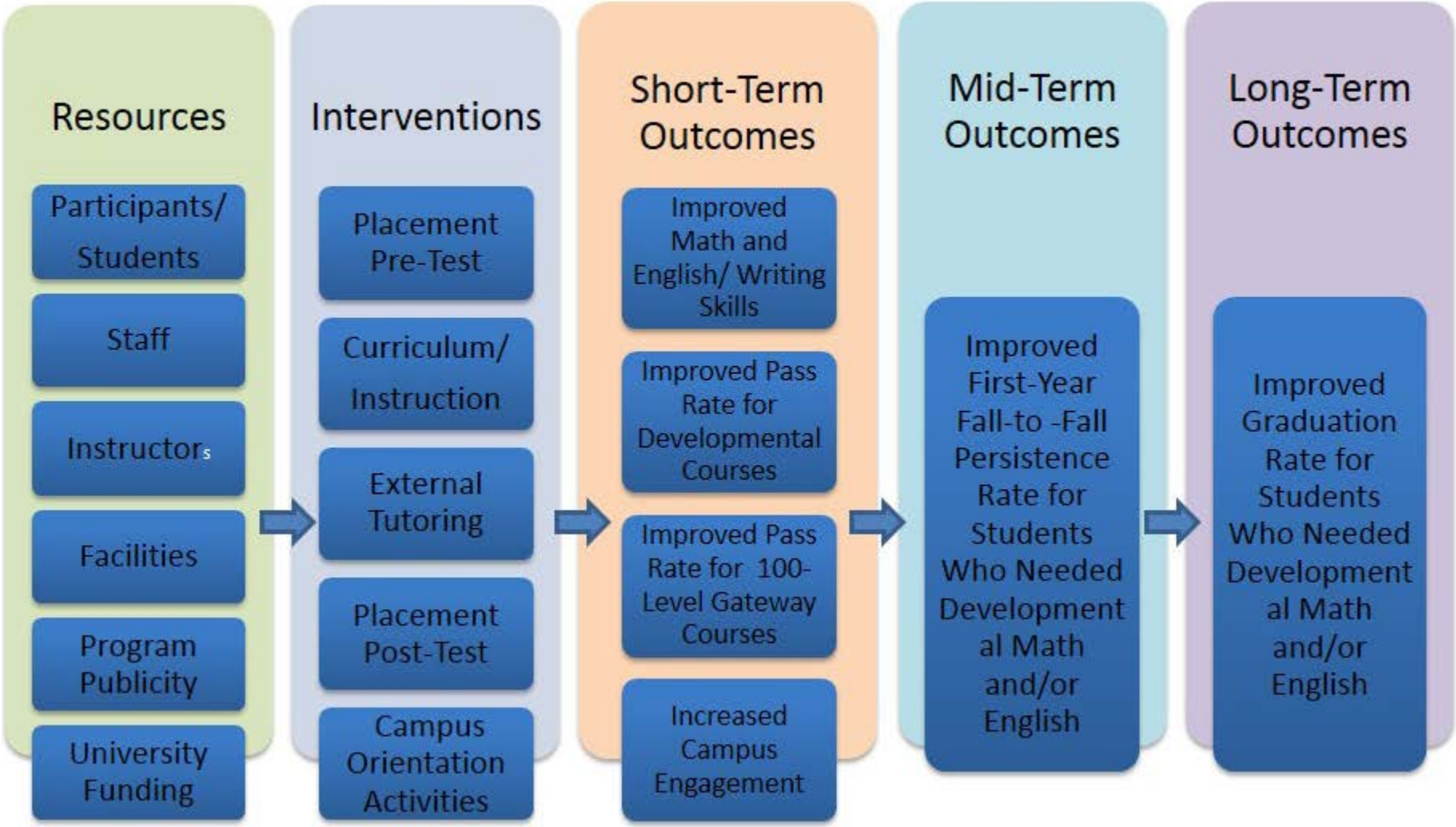
Evaluation with an Experimental Design

- A group of Texas students were divided into study and controls groups
- Study group attended a summer bridge program in math
- The study and control groups enrolled in similar number of hours
- Students who completed bridge program were more likely to pass college-level math courses within five semesters
- Gains were short-term; results diminished after two years
- No evidence that participation yielded persistence

Evaluation in Developmental Education

- Little evidence of rigorous evaluation
- Little evidence that developmental programs are being evaluated at all
- Benchmarks should be established
- Performance measures should be established
- Continuous improvement is expected
- External factors should be considered when evaluating student performance

MU Summer Bridge Program Model and Theory of Change



A Proposed Evaluation Model

- Theory-based model

- Successful evaluation
  - Identifies program goals and objectives
  - Recognizes the concerns of stakeholders
  - Understands the anticipated benefits

Components of Theory-Based Evaluation Model

- Need for Program
- Program's Design
- Implementation and Service Delivery
- Program Impact / Outcome
- Program Efficiency

Evaluation Questions & Data Collection

Need for program

- What is the nature and extent of the need for this program?
- How does this program relate to other initiative, new or old?
- What are the characteristics of the population of students for whom this program is designed?
- What are the “local conditions” in relation to the program?

Evaluation Questions & Data Collection

Program Design / Conceptualization

- Is the model designed to meet the needs of population? Is it plausible?
- Is the model consistent with University and State (WVHEPC) policies?
- Are the interventions consistent with the mission of the University?
- Are resources sufficient to meet the needs of the model?

Evaluation Questions & Data Collection

Program Operation / Implementation

- Do all stakeholders know what is expected of them?
- Is the rationale for the program clear to all stakeholders?
- Do the instructors follow the implementation instructions?
- Did the facilities allow for a comfortable and effective teaching environment?
- How did the students find out about the program?

Evaluation Questions & Data Collection

Program Outcome / Impact (Short-Term)

- How many students completed the program?
- Does the program delivery meet the stakeholders' expectations and desired level of satisfaction?
- Does the program delivery meet the participant/student needs?

Evaluation Questions & Data Collection

Program Outcome / Impact (Long-Term)

- Do the participants obtain passing grades in 100-level gateway courses?
- Do the participants persist to second year?
- Do the participants persist to graduation?
- Are the participants engaged in student organizations and activities?

Evaluation Questions & Data Collection

Program Cost / Efficiency

- Are resources used efficiently?
- Could additional students be served in a cost effective manner?
- Are there alternatives with equivalent benefits and less cost?

Framework for Evaluation Questions

Evaluation Questions	Data to be Collected	Data Collection Process/Strategy	Data Collection Schedule	Reporting Requirements
A. Need for Program				
What is the nature and extent of the need for this program?	Number of MU students needing developmental coursework Comparison to National, State and Peer School Data Success rate of students in current developmental courses	Student Data Base Research (Complete College America) Student Data Base	Available upon request Available upon completion of a literature review Available upon request	Program outcomes annually at the conclusion of the program
How does this program relate to other initiatives, new or old?	Description of other alternatives for students needing developmental coursework	Description of Current Courses, Placement Exams, Upcoming Pilot Programs, etc. (MU Catalog)	Available upon request	

Initial Model Implementation

MU Summer Bridge Impact Survey for Math Participants

- Electronic Survey via Qualtrics
  - 9 multiple choice questions
  - 12 Likert Scale responses
  - 4 open-ended questions
- 120 Math Participants
  - 37 responses (30.8%) after three requests

Survey Findings: Respondent Characteristics / Demographics

- 91% of respondents traditional-aged students; 95% were new freshmen; 69% attended main campus program; 31% attended off-campus programs
- 77% agreed with program start time; 70% agreed with length of day; 65% agreed with length of program
- 59% found out about the program via direct mail; 19% found out from parents; 18% found out from friends
- 27% reported enrollment in 100-level courses in first semester; 78% reported enrollment in MTH 098 or 099; 10 reported C or higher in 100-level course; 25 reported a grade of CR in MTH 098 or MTH 099

Survey Findings

Participant Level of Agreement with Summer Bridge Elements			
Program Element	Means	SD	
1. Participation in the Summer Bridge Program improved my math skills.	3.00	0.94	
2. The instructor was knowledgeable about the math skills he/she was teaching.	3.49	0.73	
3. The instructor was helpful.	3.38	0.86	
4. The teaching materials distributed in class were helpful.	3.19	1.00	
5. Class time was well used.	3.27	0.90	
6. Tutoring outside of the classroom instruction was helpful.	3.15	0.83	
n=37 **Scale: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree**			

Survey Findings

Participant Level of Agreement with Summer Bridge Elements			
Program Element	Means	SD	
7. The online placement pre-test and post-test were easy to use.	3.03	0.97	
8. The online placement test reflected material taught in the program.	2.75	1.08	
9. The housing arrangements in the University residence halls met my needs.	3.05	0.94	
10. The cafeteria lunch provided each day was good.	3.50	0.71	
11. Parking was convenient.	3.53	0.67	
12. I would recommend this program to other students.	3.54	0.89	
n=37	**Scale: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree**		

Survey Findings: Open-Ended Responses

What were the strengths of the Summer Bridge Program?

- Participants found instructors helpful
- Participants liked the teaching materials
- Several indicated math improvement

What were the weaknesses of the Summer Bridge Program?

- Several wanted to change the length of the day, the length of the program, and/or the start time
- Some believed they were not prepared for exam

What changes would you suggest to improve the Summer Bridge Program? Additional comments?

- Several indicated that they liked the program and would not change it
- Some recommended logistic changes
- Some recommended additional content material for placement exam

Conclusions

Evaluate, identify, and compare evaluation models

- Reviewed logistic-regression model, a regression-discontinuity model, and a true experimental model
- Little evidence to support a particular model

Propose an evaluation model

- A comprehensive theory-based model presented

Conclusions

Implement an element of model

- Impact survey was implemented
- Available participant data should be compared with self-response data
- Impact data are valuable

Provide guidelines for evaluating developmental education programs

- See table

Guidelines & Recommendations for University Administrators Evaluating Developmental Education Programs

Evaluation Topic	Recommendation
Program Design	• Establish feasible goals and objectives • Articulate clear goals and objectives • Establish a realistic change process • Clearly identify the target audience • Establish a clear method of delivering the service to the target audience • Establish well-defined activities and program components • Obtain adequate resources to implement the program • Re-evaluate and clarify program goals and objectives • Work with stakeholders to reconsider the program logic and desired outcomes

Guidelines & Recommendations for University Administrators Evaluating Developmental Education Programs (continued)

Evaluation Topic	Recommendation
Evaluation Design	• Use a regression discontinuity analysis or theory-based model • Obtain adequate resources to evaluate the program • Follow the National Association for Developmental Education (NADE) Guidelines (Exhibit D) • Establish benchmarking • Establish performance reporting • Commit to a model of continuous improvement • Consider external factors including the number of hours student works each semester, the student's responsibilities outside the classroom, and financial aid eligibility. • Analyze success in gateway courses at the conclusion of the first semester of enrollment

Guidelines & Recommendations for University Administrators Evaluating Developmental Education Programs (continued)

Evaluation Topic	Recommendation
Survey Design	• Capture the audience while you have them in the program • Ensure survey questions are valid

Implications for Further Research

- With pending budget concerns, schools must evaluate programs to justify their effectiveness
- Inconsistent evaluation methods among states and schools make comparison of data impossible
- Future research needs to consider a standardized set of benchmarks
- A systems approach should be implemented
- National Association for Developmental Education (NADE) has prepared benchmarks

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