**Evaluating Developmental Education Programs: A Proposed Model**

**and Guidelines for Higher Education Administrators**

*Sherri L. Stepp*

*Marshall University*

*Ron Childress*

*Marshall University*

**Abstract**

 Higher education faces increasing demands to provide developmental education to a growing population of underprepared high school graduates, nontraditional students, veterans, immigrants, and displaced workers looking to enhance job skills. A number of program models directed at addressing the needs of these populations have emerged. These programmatic investments notwithstanding, colleges and universities have not generally conducted comprehensive evaluations of these programs. This paper will present a theory based model for evaluating such programs and provide administrative/policy guidelines for higher education administrators who are administering and evaluating developmental education programs.

**Introduction**

 State policymakers and institutions of higher education are looking for new recruitment opportunities while challenging current efforts to promote retention in response to the decreasing number of high school graduates and potentially crippling budget cuts. Concurrently, there is a significant amount of national attention directed to developmental education in higher education as one population of students in need of improved persistence and retention rates.

 There is a growing movement among colleges and universities who are beginning to view developmental education as an opportunity to help them meet increasing policy, legislative, and public expectations for greater retention and degree attainment (Vandal, 2010). Students needing developmental education come from a variety of backgrounds and include students who leave high school underprepared for college, non-traditional students who delay entry into higher education, adults needing additional education for their jobs, veterans, and immigrants (American Association of State Colleges and Universities [AASCU], 2008).

 At most colleges and universities, remedial or developmental education involves a model that provides students with extra time to build their skills in English or math with the goal of preparing them for college level courses. While this strategy seems to be based on common sense, the methodology is flawed: “long sequences of fragmented, reductive coursework are not an on-ramp to college for underprepared students, but a dead end” (Charles A. Dana Center, Complete College America, Inc., Education Commission for the States, & Jobs for the Future, 2012, p. 3). In response, colleges and universities are looking for alternative models and delivery strategies to reduce the amount of time developmental students need before entering 100-level gateway courses in English and mathematics. The earlier students enter these gateway courses, the more likely they are to persist to graduation (Charles A. Dana Center, Complete College America, Inc., Education Commission for the States, & Jobs for the Future, 2012).

 The National Association for Developmental Education (NADE, n. d.) defines developmental education as the programs implemented to encourage the development of discipline-specific skills and provide support services for students who have been determined to have skills below what is required for college-level coursework. Traditional developmental education programs include lecture-based classroom instruction. Alternative methods of developmental delivery include summer bridge boot-camp-type programs that offer intense instruction in a short period of time, co-requisites linking developmental courses with study skill instruction, supplemental instruction, learning communities, and individual and group tutoring sessions.

 Determining the effectiveness of developmental programs, whether traditional or alternative, is difficult. There are innumerable extraneous variables affecting student performance. Lesik (2008) suggests that it is nearly impossible to determine that participation in developmental education programs leads to student retention because of the extent of these external factors. Institutions are responsible for utilizing staffing and funding efficiently and effectively; therefore, workable program evaluation models and strategies are needed to assist in providing direction for developmental education programs.

**Problem Statement and Study Objectives**

 Developmental education programming should be based on well-documented best practices; however, Lesik (2006) suggests that the long-term effectiveness of developmental programs has not been adequately evaluated. Bahr (2008) also stated that only a few comprehensive evaluations of developmental programs had been published. Lazarik (1997) pointed out that college and university administrators should make developmental education program evaluation a priority. In doing so, these programs provide gateways for underprepared students to have a second chance at a college education. Lazarik made these comments in 1997 and the climate today is similar but intensified.

 The College Board Advocacy & Policy Center (2012) notes that the results of the evaluation of developmental education programs are mixed and sometimes reflect that developmental students perform worse than similar students who do not participate in such programs. Now, more than ever, there is an urgent need for colleges and universities to carefully evaluate the level of success of their developmental programs and implement programs that foster growth in persistence and retention goals.

 This paper has three objectives. Initially, selected models utilized by colleges and universities to evaluate post-secondary developmental education programs will be identified, compared, and contrasted. Subsequently, the paper will describe a theory-based evaluation model for a summer bridge developmental education program being implemented in a mid-sized public regional university. Finally, administrative and policy guidelines for administrators responsible for developing and evaluating developmental education programs will be provided.

 A review of these evaluation models can assist colleges and universities in establishing evaluation models that will provide guidance in continuing or altering current developmental programs or implementing new ones. Policymakers and state legislators have acknowledged the opportunity for developmental education programs and are encouraging colleges and universities to establish best practices through well-executed evaluation (Boylan and Bonham, 2007). Proper execution requires continuous assessment and thorough evaluation.

**Literature Review**

 The College Board Advocacy & Policy Center (2012) reports that nearly 26% of high school graduates who enter 4-year institutions need math remediation and nearly 25% need writing remediation. While those students may excel in other subjects, they will need additional attention in the problem area(s). Once an educational institution agrees to admit a student, the institution is obligated to provide the support programs that student needs in order to succeed (Veenstra, 2009).

 In the current developmental education climate, colleges and universities need to know and understand their students to determine the most cost-effective and promising programs that lead toward persistence and graduation; however, “…retention should be the residual benefit of planning and implementing effective student learning and success initiatives rather than as the purpose of it” (Siegel, 2011, p. 1). The National Center for Developmental Education (2010) issued a resolution in response to the increased demand for program accountability from individual institutions as well as state policymakers. The resolution states:

Therefore it be resolved that the National Association of Developmental Education advocates that institutions provide the necessary support and resources for their developmental education programs to regularly engage in a process of evaluation that includes analyzing data and conducting self-evaluation using recognized professional standards (p. 1).

Thus, there is a need to support the establishment of benchmarks in creating customized developmental education programs along with the development of more stringent policies that efficiently advance students into college-level gateway courses (Education Commission of the States, May 2010).

 This literature review provides a brief overview of the developmental education evaluation climate and explores the primary methodologies for evaluating developmental education programs. One method is the logistic regression analysis and the second method is the regression-discontinuity analysis. Although rarely used for the evaluation of developmental education programs due to the ethical nature of the study methodology, a review of a true experimental design is also provided.

**The Context for Evaluating Developmental Education**

 The Education Commission of the States (2011) acknowledges the importance of developmental education program evaluation as institutions strive for innovation and funding accountability. Developmental education programs can also be strengthened by continual evaluation of cost productivity and effectiveness. Program evaluation allows state policymakers to leverage funds to the programs who are effectively meeting goals. The commission urges policymakers to establish performance measures and benchmarking, performance reporting, performance funding, and continuous improvement. Data for benchmarking include remedial course completion, completion of 100-level gateway courses, persistence to second year, and graduation. These items are included in performance reporting along with the program costs.

 Boylan (2009) identifies external factors that should be considered when evaluating the success of developmental programs. Student performance can be strongly affected by factors such as the number of hours of work each week, responsibilities outside the classroom such as childcare, and financial aid eligibility. Boylan suggests these and other outside factors should be incorporated into the evaluation model.

**Frameworks for Evaluating Developmental Education Programs**

 Educational institutions, however, are reluctant to perform true experimental studies to determine the effectiveness of remedial or developmental programs (Lesik, 2008). To do so, the study would have to withhold the developmental support program from the control group and this could be unethical as well as detrimental to the students’ educational goals. Colleges and universities are then faced with finding alternate evaluation methods.

**Logistic Regression Analysis Designs**

 According to the United Nations Educational, Scientific and Cultural Organization (n. d.), a regression analysis explores a relationship between a dependent variable and one or more independent variables. Lesik (2008) discusses the use of a logistic regression analysis to determine a causal relationship between student success and the utilized developmental support program. In this method, the researcher would define multiple factors that might influence a student’s persistence toward graduation. One of the dichotomous variables would be participation in the developmental program. “Based on the results of the regression analysis, researchers will make conclusions about whether or not they believe the developmental program is effective in keeping students in college by interpreting the estimate of the coefficient of the dichotomous treatment variable” (p. 3).

 Bettinger and Long (2009) obtained data for more than 28,000 students from the Ohio Board of Regents. The student population included traditional-aged Ohio undergraduate students who entered college in Fall 1998 and the group was studied for a period of six years. Since Ohio institutions did not use consistent measures for remediation requirements, the researchers utilized a series of variables such as gender, race, age, family financial status, type of high school attended, standardized test scores, high school GPA, high school math GPA, and the number of math courses taken in high school to predict whether or not the student was likely to participate in remediation at the closest college to their home. Using a regression analysis, their research concluded that students who participated in the developmental program performed better than students with like backgrounds who did not participate in the program. They found increased college persistence in the treatment group.

 Bahr (2008) studied data from the Chancellor’s Office of California Community Colleges for 85,894 first-time freshmen enrolled at 107 community colleges. By using a hierarchical multinomial logistic regression, he determined that math students who remediated successfully were able to achieve long-term academic success comparable to students who did not require remediation. Bahr concluded that further research is needed to determine the factors that prohibit successful remediation.

**Regression-Discontinuity Analysis Designs**

 The Web Center for Social Research Methods (n. d.) describes the regression-discontinuity design as a strategy to assign students to the treatment group based on a score slightly below a previously established cut-score and to the control group based on a score slightly above the cut-score. This evaluation method closely imitates the true random experimental design that is elusive to developmental education evaluators. By using a pretest with a predetermined, exogenous assignment variable, such as a placement exam or other diagnostic test with a defined cut-score, nearly equivalent groups can be established by assigning those closest to the upper side of the cut-score in a control group and those on the lower side as the experimental group (Lesik, 2008). This selection eliminates the ethical concerns as no support program would be withheld from students needing the education program. By using this method, the researcher can determine the causal relationship of the treatment program because it makes the assumption that students who score slightly above and below the established cutoff would be identical except for the exposure to the developmental program (Lesik, 2006).

 Using a regression discontinuity design, Martorell and McFarlin (2007) conducted a study on Texas students utilizing data from the Texas Higher Education Coordinating Board (THECB). Data reviewed included performance in the first college-level mathematics course, credit hours attempted and degree or certificate attainment with the primary variable being whether or not the student participated in remediation. The data included information on students who entered college as first-year students between 1991-1992 and 1999-2000. Each student’s academic progress was tracked for six years. The research design utilized a placement exam score as the assignment variable for the regression discontinuity analysis.

 Martorell and McFarlin (2007) felt that it is unlikely that the effect of remediation would be the same for all students. For this reason, they incorporated an estimate of an average treatment effect into their study results and noted that this information is most informative for marginal students who score closest to the placement cut-score. Martorell and McFarlin believe that these marginal students are “policy relevant” for three reasons: (1) a large portion of students were tested close to the cut-score; (2) policymakers understand that the developmental programs are intended for those students who are just below the cut-score because students significantly below the cut-score are not expected to be successful; and (3) policymakers can use the information to determine if the cut-score is established at the correct level. For students near the cut-score, Martorell and McFarlin’s study found little effect on student performance. The finding is significant for two- and four-year students as well as student subgroups. The researchers fully understand the impact of the results by noting that the substantial cost for the program is not justified by the benefit.

 Moss and Yeaton (2006) note that the regression-discontinuity design for evaluating developmental education programs can be used to inform policy development and can be conducted with little cost and effort while maintaining a rigorous methodology. There is no need to do any additional data collection. The data utilized in a regression-discontinuity design should be readily available. By using the predetermined placement cut-score and selecting students just above and below that score, you can assume that all other factors are reasonably consistent in the control and study groups. In many of the weaker methods, Moss and Yeaton argue, there is no consideration of group differences prior to the program and when evaluating only the results of the developmental program participants, there is no control group for comparison. Comparatively, Zachry (MDRC, 2008) notes that regression-discontinuity evaluation models fail to find a causal relationship between the program and student success, but can identify effective trends. These trends can help colleges and universities determine whether or not to continue support for a particular program.

**Experimental Design**

 The National Center for Postsecondary Research chose Texas for a developmental education program evaluation study using an experimental design model (Bradley, 2012). Texas has embraced the summer bridge format for addressing student needs in developmental education and the Center staff felt this program lent itself to an experimental design based evaluation model. The study was conducted at seven community colleges and one open admission university. Thirteen hundred students were divided into study and control groups. The study group attended bridge programs for three to seven hours per day for four to five weeks. Students received instruction in one discipline area along with additional academic support, accelerated instruction, and college transition information (Bradley, 2012).

 According to Bradley (2012), the National Center for Postsecondary Research found inconclusive results. The control group and the study group enrolled in a similar number of course credits in their first semesters. Students who completed bridge programs were more likely than control group students to pass the college-level math and writing courses in a period of five semesters after the bridge program, but the results diminished after two years. The gains were short-term, like a “booster shot” (p. 6). There was no evidence that bridge program participation increased persistence.

**Evaluating the Evaluation Designs**

 Garcia and Paz (2009), graduate students and former participants in a summer bridge program, conducted a literature review and concluded that there is little evidence of comprehensive evaluation of programs like the one in which they participated. They argued that in addition to university officials and state policymakers, the primary stakeholders are the students and, because of their vulnerabilities as developmental students, they need to see the clear evidence regarding participant success and persistence.

 Many students are shocked when they discover they are unprepared for college level courses (Feldman and Zimbler, 2012). Feldman and Zimbler believe that, oftentimes, they are not aware of their unpreparedness until they take their initial placement examinations. In many cases, this knowledge affects the self-esteem of the student and immediately places a road-block on their path toward a degree. The authors recommend that colleges and universities consider the student vulnerabilities and not ask students to participate in programs that have proven to be ineffective.

 The discussion about the lack of rigorous evaluation methods is common in the literature. Collins (2010) notes that the practitioner-oriented researchers rely on surveys, observations, and interviews to determine the effectiveness of programs. This type of research leads to what is generally called best practices. Experimental and quasi-experimental research comparing intervention and control groups falls on a continuum of positive impact, moderate impact, no impact, and negative impact on the developmental participants.

 Collins (2010) emphasizes the need for all researchers, whether utilizing experimental or non-experimental designs, to acknowledge the factors beyond the classroom that affect student performance. Researchers risk finding a false-positive result when he or she concludes the program had a significant impact. A researcher could also find a false-negative result. The number of extraneous factors is overwhelming and nearly impossible to define but certainly result in misleading or inaccurate evaluation findings. Both types of research methods struggle to find the causal relationship between the intervention and the results.

 Effective evaluation methodologies need to be implemented to ensure that programs are both cost effective and successful in retaining students. The logistic regression analysis compared the effectiveness of the developmental treatment for students with similar external factors and found the treatment to be successful. The regression-discontinuity analysis found little difference in the success of students slightly above or below the established cut-scores. An optional summer bridge program provided the means for a true experimental evaluation which found increased persistence shortly after completion of the program, but the results diminished over time.

 Based on the literature review for this paper, there is no overwhelming evidence to support a particular methodology for evaluating developmental education programs. The literature review falls short of declaring any particular method successful in all situations. Many questions remain on the effectiveness of the evaluation designs.

**A Proposed Evaluation Model: The Summer Bridge Program at Marshall University**

 The Marshall University Summer Bridge Program was implemented in the summer of 2012. The Bridge Program included intensive math and English workshops purposefully designed to help students learn or refresh the skills needed to pass a placement exam for entry into first-semester 100-level gateway courses. The target participants were admitted freshmen scheduled to enroll in Fall 2012 who needed developmental math and/or English. A secondary group of participants included conditionally admitted students in danger of dismissal from the University if placement in 100-level math was not achieved by the end of the fall 2012 semester.

 The first session was held in June and the second in July. The math and English programs ran concurrently. If a student needed both math and English remediation, he or she could participate in both the June and July programs. Each session consisted of 8-day workshops with intensive instruction in the morning, a break for lunch, and individual lab-type work in the afternoons. Instructors administered placement exams on the first and last day of the sessions to measure improvement and determine the placement level for fall enrollment.

**Program Model and Theory of Change**

 The program and theory of change model for the summer bridge program is included as Appendix A. Bridge program resources included participating students, their parents, program staff, faculty instructors, physical facilities, program publicity, and university funding. A description of the targeted participants includes incoming freshmen students needing developmental coursework. The program staff included representatives from Academic Affairs, the Office of Recruitment, and University College. Instructors with developmental education experience were recruited from the mathematics and English departments

 Interventions included a pre-test Accuplacer placement exam for mathematics and an in-house writing exam for English. These exams were administered on the first day of the program. Students received instruction each morning and additional activities after lunch. Additional tutoring was available in the University Tutoring Center in the afternoons. On the last day of the program, students completed a post-test placement exam. Information about campus, housing, and other services was integrated with the instructional activities.

 The short-term program goals included improved skills, improved pass rates for developmental courses, improved pass rates for 100-level gateway courses, and increased campus engagement. Mid-term expectations included persistence to second year enrollment while the long-term goal was focused on improving the graduation rate for students receiving developmental education in math and/or English.

**The Evaluation Model**

 The political environment in West Virginia is somewhat tenuous regarding developmental education. The West Virginia Higher Education Policy Commission has mandated that state colleges and universities reconsider their developmental education practices and preliminary documents indicate that a significant increase in the success rate will be desired in a short period of time. In the near future, West Virginia colleges and universities may receive funding through a performance-based allocation model which ties funding to student graduation rates (West Virginia College Completion Task Force, 2012), thus, the urgent need to support this population of underprepared students. Such an environment should not affect the evaluation of the program but result in the support needed to conduct comprehensive program evaluations.

 Programs such as the summer bridge are implemented with the belief that certain activities will result in defined benefits to the participants. The evaluation design used in this program is a theory-based model based on the work of Rossi, Lipsey, and Freeman (2004). In order for a program to be successfully evaluated, the authors believe the evaluator must be able to identify the program goals and objectives, recognize the concerns of the stakeholders, and articulate the anticipated benefits. Rossi, Lipsey, and Freeman’s theory-based evaluation approach includes five components: program need; program design/conceptualization; program operation/implementation; program outcome/impact; and program cost/efficiency. In determining need, an evaluator will recognize a problem, the need for an intervention, and the proposed audience. The assessment of the conceptualization and design of an evaluation model will consider the program boundaries, the plausibility of the program, and the desired measurable outcomes. Evaluating the implementation includes the review of each program component, process, performance, participant, and resource. Impact assessments are used to determine whether or not the intervention is producing the expected outcomes or perhaps producing unexpected and unintended outcomes. In order to assess efficiency, cost analyses are used to evaluate whether or not the outcomes of an intervention are justified by the cost (Rossi, Lipsey, and Freeman, 2004).

 The evaluation model is guided by a series of essential questions in each of the five model components. Sample questions for each component are provided in the Framework for Evaluation Questions (Appendix B). This table provides the questions that will be addressed during the evaluation, the data that will need to be collected, a brief description of the data collection methodologies, the schedule for data collection, and the reporting requirements.

 Survey data to be collected will be developed into one comprehensive survey for each category of stakeholders. Surveys will be distributed at the conclusion of the program and results prepared after a designated response time. Available data regarding expenses, completion of program, and other relative program statistics will be collected and analyzed at the conclusion of the program. Additional longitudinal studies will be conducted for student persistence one year after matriculation and graduation rates will be evaluated at four, five, and six years after matriculation.

 The goals for evaluating the entire bridge program were to determine the level of success each summer and use these results to inform decisions about program improvement or change in subsequent years. Success would be indicated by a higher percentage of students entering 100-level gateway courses in the subsequent fall semester, but evaluators must also consider the success of students in those courses. If the students are not successful, the program may have lost ground by placing them in the courses. The long-term goals of persistence and graduation cannot be immediately assessed; however, the plan includes a strategy for measuring persistence one-year from matriculation and graduation after four, five, and six years. University staff would be provided to conduct the evaluation. The cost would require staff time and printing and copying costs.

**Conclusions**

 This paper addressed three objectives in relation to the evaluation of developmental education programs. The first objective was to identify, compare, and contrast selected models used to evaluate post-secondary developmental education programs. Examples of a logistic regression analysis model, a regression-discontinuity model, and a true experimental model were reviewed. In the literature reviewed for this paper, there was little evidence to support a particular evaluation design.

 The second objective was to describe a proposed evaluation model for a summer bridge program implemented in a mid-sized public regional university. A comprehensive theory based evaluation model has been presented.

 A final objective of this paper was to present guidelines and recommendations for university administrators who are considering implementing and evaluating developmental educational programs. These guidelines and recommendations are included in Table 1. Recommendations are organized into two categories: program design and evaluation design.

**Discussion and Implications**

 In consideration of current budget challenges, it is essential that developmental programs, whether traditional or alternative in nature, be evaluated to determine effectiveness. University administrators can justify funds spent on evaluation by confirming that program goals and objectives were attained. If the attainment of goals and objectives cannot be confirmed, it is essential that programs be reconsidered. Rossi et al. (2004) established a set of recommendations for redesigning a program. Reconstructing a program might include “(1) clarifying goals and objectives; (2) restructuring components for which the intended activities are not happening, needed, or reasonable; (3) working with stakeholders to obtain consensus about the logic that connects program activities and the desired outcomes” (p. 165).

 While there are a number of best practices emerging in the field of developmental education, Bailey (2009) states that available research provides some guidance but there is little data to support the effectiveness of particular programs. In response to the lack of consensus, the National Association for Developmental Education (n. d.) has established a set of goals for developmental education programs. These goals include preserving opportunity for students, accurate placement in courses, development of skills and attitudes appropriate to the learning and career environments, development of skills essential to successful completion of college-level courses, and student retention.

 States have utilized different measures to evaluate the success of developmental programs. Methods include the number of students who passed a final exam, passed a developmental course, the number of students who have utilized developmental services and even satisfaction surveys. As a result of the inconsistent evaluation methods, it is not possible to compare the inconsistent data that currently exists at the state level. In response, in the *Criteria for Program Evaluation* (n. d.), the National Association for Developmental Education (NADE) made specific recommendations for the implementation of industry standards for evaluating developmental education. Recommendations for quantitative and qualitative strategies are provided in the Appendix C (National Center for Developmental Education, n. d.).

 Professional associations and agencies have long promoted the importance of the evaluation of developmental education programs. Program evaluation promotes student success. To meet the recent challenges noted above, institutions need to implement systematic and ongoing evaluation to investigate all program components (Boylan, Bliss, & Bonham, 1997). The Education Commission of the States (2010) clearly notes that states are not operating on industry standards. The implementation of a systems approach could help colleges and universities who will be forced to reform their developmental education programs as states reduce funding for postsecondary education. Institutions will need to be creative in developing new developmental strategies in consideration of performance funding based on established benchmarks. Continued implementation of developmental education evaluation methods can be essential to meeting those student success benchmarks.

**References**

American Association of State Colleges and Universities. (2008, August). *Enhancing college student success through developmental education*. Washington, DC: Russell, A.

Bahr, P. (2008). Does mathematics remediation work? A comparative analysis of academic attainment among community college students. *Research in Higher Education, 49*(5), 420-450.

Bailey, T. (2009). Challenge and opportunity: Rethinking the role and function of developmental education in community college. *New Directions for Community Colleges,* 145, 11-30.

Bettinger, E. P., & Long, B. T. (2009). Addressing the needs of underprepared students in higher education. *The Journal of Human Resources, 44*(3), 736-771.

Boylan, H. R. (2009, Spring). Targeted intervention for developmental education students (T.I.D.E.S.). *Journal of Developmental Education, 32*(3), 14-23.

Boylan, H. R., & Bonham, B. S. (2007, Spring). 30 years of developmental education: A retrospective. *Journal of Developmental Education, 30*(4), 2 – 4.

Boylan, H. R., Bliss, L., & Bonham, B.S. (1997, Spring). Program components and their relationship to student performance. *Journal of Developmental Education, 20*(3), 1- 10.

Bradley, P. (2012, July 9). School is in for summer: Study shows college bridge programs yield mixed results. *Community College Week,* 6 – 7.

Charles A. Dana Center, Complete College America, Inc., Education Commission for the States, & Jobs for the Future. (2012, December). *Core principles for* transforming *remedial education: A joint statement.* Author not listed.

College Board Advocacy & Policy Center. (2012). *Collegiate remediation: A review of the causes and consequences.* New York, NY: Kurlaender, M., & Howell, J. S.

Collins, M. L. (2010, Fall). Bridging the evidence gap in developmental education. *Journal of Developmental Education, 34*(1), 2-8.

Education Commission of the States. (2011, January). *Getting past go: Accountability & continuous improvement in remedial education.* Denver, CO:Smith, M.

Garcia, L. D. & Paz, C. C. (2009, September-October). Evaluation of summer bridge programs. *About Campus,* 30 – 32.

Lazarik, L. (1997). Back to the basics: Remedial education. *Community College Journal, 11 – 15.*

Lesik, S. A. (2006). Do developmental mathematics programs have a causal impact on student retention? An application of discrete-time survival and regression-discontinuity analysis. *Research in Higher Education, 48*(5), 583- 608.

Lesik, S. A. (2008). Evaluating developmental education programs in higher education. *ASHE/Lumina Policy Briefs and Critical Essays No. 4.* Ames: Iowa State University, Department of Educational Leadership and Policy Studies.

Martorell, P. & McFarlin, I. (2007). *Help or hindrance? The effects of college remediation on academic and labor market outcomes.* Unpublished manuscript.

MDRC. (2008, December). *Promising Instructional Reforms in Developmental Education: A Case Study of Three Achieving the Dream Colleges.* New York, NY: Zachry, E. M.

Moss, B. G., & Yeaton, W. H. (2006). Shaping policies related to developmental education: An evaluation using the regression-discontinuity design. *Educational Evaluation and Policy Analysis, 28,* 215 – 229.

National Association for Developmental Education. (n. d.). *Developmental Education Goals and Definition*. Retrieved from: <http://tncc.edu/VADE/NADEpurpose.pdf>

National Center for Developmental Education. (2010). *Need for systematic ongoing evaluation in developmental education.* Goodyear, AZ: Author not listed.

National Center for Developmental Education. (n. d.). *Criteria for program evaluation.* Goodyear, AZ: Boylan, H. R., & Bonham, B. S.

Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). *Evaluation: A systematic approach* (7th Ed).Thousand Oaks, CA: Sage Publications, Inc.

Siegel, M. (2011, January-February). Retention problem: Moving our thinking from end-product to by-product. *About Campus, 8-18.*

United Nations Educational, Scientific and Cultural Organization. (n. d.). *4.4 Regression Analysis.* Retrieved from: <http://www.unesco.org/webworld/idams/advguide/Chapt4_4.htm>.

Web Center for Social Research Methods. (2006, October). *The Regression-Discontinuity Design.* Retrieved from: <http://www.socialresearchmethods.net/kb/quasird.php>.

West Virginia College Completion Task Force. (2012, May). *Educating West Virginia is everyone’s business.* Author not listed.

Veenstra, C. P. (2009, January). A strategy for improving freshman college retention. *The Journal for Quality & Participation, 19-23.*

# Appendix A: MU Summer Bridge Program Model and Theory of Change

# Appendix B: Framework for Evaluation Questions (Sample Questions)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Evaluation Questions** | **Data to be Collected** | **Data Collection****Process/Strategy** | **Data Collection****Schedule** | **Reporting****Requirements** |
| 1. **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 |
| 1. **Program Design / Conceptualization**
 |
| Is the model designed to meet the needs of population? Is it plausible? | Participant Selection Process | Program Procedures and Student Data Base | Available upon request | Program outcomes annually at the conclusion of the program |
| 1. **Program Operation / Implementation**
 |
| Do all stakeholders know what is expected of them? | Expectations of Math and English Departments, Academic Affairs, Students, Parents, and Coordinators | Survey of Math and English Department Instructors,Academic Affairs Administrators, Students, Parents, and Program Coordinators | Surveys to be completed at the conclusion of the program | Program outcomes annually at the conclusion of the program |
| 1. **Program Outcome / Impact**
 |
| How many students complete the program? (Short-term) | Attendance/Completion Data | Attendance/Completion Records | Available upon request at the conclusion of the program | Program outcomes annually at the conclusion of the program and longitudinal data at 1, 4, 5, and 6 years after implementation |
| 1. **Program Cost / Efficiency**
 |
| Are resources used efficiently? | Cost Per Student | Analysis of cost per participant and cost per participants who improved performance level in comparison with recruitment and retention costs. Institutional Research. | Data available at the conclusion of the program and via additional longitudinal data | Financial reports annually at the conclusion of the program. |
| Could additional students be served in a cost effective manner? | Cost Per Student | Same as Above with Consideration of Additional Funding Availability (Academic Affairs). | Data available at the conclusion of the program and via additional longitudinal data |
| Are there alternatives with equivalent benefits and less cost? | Description of other alternatives for students needing developmental coursework. | Description of Current Courses, Placement Exams, Upcoming Pilot Programs, etc. In Consideration of Cost Per Student Data for all programs. Institutional Research and Academic Affairs. | Literature review of available programs in comparison with longitudinal data |

# Appendix C: National Association for Development Education

Recommendations for Industry Standards for Evaluation of Developmental Education

Quantitative

1. How many students participated in the program/courses?
2. How many hours of tutoring were offered?
3. How many sections of developmental courses were offered?
4. What percentage of the students who entered the course stayed for the entire term?
5. What percentage of those who stayed the entire term earned a C or better?
6. What were the g-scores for those taking the course or receiving tutoring?
7. How many of those who participated in the course/program remained for one semester?
8. What percentage of those who passed the lowest level developmental course took and passed the next level developmental course?
9. What percentage of those who passed the highest level developmental course took and passed the next level curriculum course in that subject?
10. What percentage of those who took one or more developmental courses was retained from fall to fall?
11. What percentage of those who took one or more developmental courses graduated within 2, 3, 4, 5, 6 years?

Qualitative

1. To what extent are student users satisfied with the program?
2. What are faculty/staff perceptions of the program?
3. What are faculty/staff perceptions of the program’s students?
4. What is the impact of program on the campus as a whole? (National Center for Developmental Education, n. d., p. 1-2).

|  |
| --- |
| Table 1 |
| *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.
* Restructure the components of the program not meeting goals and objectives.
* Work with stakeholders to reconsider the program logic and desired outcomes.
 |
| 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 C).
* 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.
* Capture the audience while you have them in the program.
* Ensure survey questions are valid.
 |
|  |