

Proposal Details

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Project Description I

Title:

The “Black Hole” of Remedial Mathematics: Toward an Explanation for the Disparities in Successful Remediation between Severely, Moderately, and Mildly Deficient Community College Students

Statement of the research problem and national importance:

One of the greatest challenges facing community colleges today is the large number of students who enter postsecondary education with deficiencies in basic skills, such as math, writing, and reading (Bailey, 2009; Levin & Calcagno, 2008; Perin & Charron, 2006). Although estimates vary from college to college, Bailey & Morest (2006) indicate that, “[a]t many community colleges, more than half of entering students are judged to be unprepared for college-level work” (pg. 6). Furthermore, the challenges faced by community colleges in assisting underprepared students to remedy their skill deficiencies and advance to college coursework, and the challenges faced by the students themselves, are compounded by the fact that skill-deficient students are disproportionately of lower socioeconomic status and of historically disadvantaged racial/ethnic groups (Attewell, Lavin, Domina & Levey, 2006; Bahr, 2010a; Bailey, Jeong & Cho, 2010; Perin & Charron, 2006). Thus, the “problem” of postsecondary remediation (Astin, 1998, p. 12), particularly the low rates at which skill-deficient community college students advance successfully to college coursework and beyond (Bahr, 2010b), represents a confluence of persistent challenges and equally persistent inequities in students’ postsecondary attainment.

Within the topic of postsecondary remediation, students’ skill deficiencies in mathematics are of particular concern. Math is both the subject in which the greatest percentage of students require remedial assistance (Adelman, 2004; Attewell, et al., 2006; Parsad, Lewis & Greene, 2003) and the subject in which skill-deficient students are least likely to advance successfully to college-level coursework (Bailey, Jeong & Cho, 2008). For example, one large-scale study found that less than one-quarter of community college students who begin the remedial math sequence ultimately attain college-level math competency (Bahr, 2008). Moreover, the increasing interest of researchers and policymakers in the “pipeline” of academic coursework in science, technology, mathematics, and engineering (STEM), particularly as it relates to the academic outcomes of students of historically disadvantaged groups (see, for example, MacLachlan & Chavez, n.d.), highlights the need to focus concerted empirical attention on postsecondary remediation in math, especially the underlying causes of the low rate of successful college-level math skill attainment among community college students.

Although what we know about community college students’ progress through, and attainment in, the remedial math sequence is far outweighed by what we do not know, one finding has become exceedingly clear. One of the strongest (if not *the*

strongest) predictors of whether or not a student will remediate successfully in math is his/her level of math deficiency at college entry (Bahr, 2007, 2008, 2010a; Bailey, Jeong & Cho, 2008). In other words, students who are severely, moderately, and mildly deficient in math differ greatly in terms of the likelihood of reaching college-level math competency. These disparities in college-level math skill attainment are referred to as the “skill gaps” in successful remediation in math (Bahr, 2010c).

Given the consequential weight of student’s initial level of math deficiency in the larger question of whether or not the student will succeed and achieve in mathematics, and given the established correlation between student’s demographic characteristics and degree math deficiency (e.g., Bahr, 2010a), acquiring an understanding of the relationship between initial math deficiency and attainment of college-level math skill is a matter of considerable import and consequence. Yet, empirically verified explanations for the “skill gaps” in successful remediation in math remain elusive. Although Bahr analyzed a number of possible explanations (for a detailed discussion, see Bahr, 2010c), stubborn and sizeable residual gaps remain even after accounting for a host of statistical controls.

The purpose of the study proposed here is to advance significantly our understanding of the relationship between the community college students’ initial deficiency in mathematics and their attainment of college-level math competency. This understanding is key both to improving the mathematics outcomes of math-deficient students and to advancing equity in postsecondary attainment across lines of social class, race/ethnicity, and other student characteristics on which systematic educational disadvantages are consistently observed. Specifically, we seek to explain fully the “skill gaps” in successful remediation in math among math-deficient community college students by identifying the factors that contribute to disparities in college-level math skill attainment between severely, moderately, and mildly deficient students. To accomplish this objective, we will test statistically seven possible explanations for (mediating variables in) the relationship between math skill at college entry and ultimate attainment in math, while controlling for those explanatory variables that have been considered in prior work (Bahr, 2007, 2010c, 2010a). We will employ data from the NCES restricted-use 04/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09), which includes a nationally representative sample of first-time students, and the associated Postsecondary Education Transcript Study (PETS), both of which are scheduled to be released shortly.

Review the literature and establish a theoretical grounding for the research:

A number of findings regarding postsecondary remedial mathematics have emerged recently that, when taken together, point to an important mystery concerning the academic fate of math-deficient community college students. First among these findings, it is clear that the rate of successful remediation in math is very low (Bahr, 2007, 2008; Bailey, 2009; Bailey, Jeong & Cho, 2010; Bashford & Slater, 2008). Most community college students who begin the remedial math sequence ultimately do not achieve college-level math skill (i.e., complete successfully a college-level math course), and this holds true even when students' outcomes are monitored for a full seven years following initial enrollment in college (Bahr, 2010c). This is troubling for a number of reasons, not the least of which is that a sizeable percentage of students who enroll in community colleges require remediation in math – more, in fact, than in any other subject (Bahr, 2008; Biswas, 2007; Colorado, 2005; Minnesota, 2005; Murray, 2008; Parsad, Lewis & Greene, 2003; Plucker, Wongsarnpigoon & Houser, 2006; Provasnik & Planty, 2008). In sum, many students enter the remedial math sequence, but few exit successfully.

Second, students who have severe math deficiencies at college entry are much less likely to achieve college-level math skill than are students who have moderate math deficiencies, and those who have moderate math deficiencies are much less likely than are those who have mild deficiencies (Bahr, 2007, 2008, 2010a; Bailey, Jeong & Cho, 2010). In other words, as math skills decline, the chances of achieving college-level math competency drop sharply.

Third, the vast majority of students who do not remediate successfully ultimately neither complete a community college credential (e.g., associate's degree, certificate) nor transfer to a four-year institution (Bahr, 2008, 2010b; Biswas, 2007). Said another way, in terms of the readily measureable outcomes of credential completion and upward transfer, the most common outcome among remedial math students who do not remediate successfully is, in a word, nothing.

Fourth – and this is the mystery of it – differences in student persistence (retention) do not explain fully the wide gulfs in the rate of successful remediation between students who have severe math deficiencies, those who have moderate deficiencies, and those who have mild deficiencies (Bahr, 2010c). In fact, prior work has accounted for correlated differences in persistence (measured as duration of college attendance), enrollment inconsistency (stopout behavior), delay of first math enrollment (math procrastination), performance in first math, level of competency/deficiency in English at college entry, self-reported academic goal, race/ethnicity, sex, age, and receipt of financial aid (Bahr, 2007, 2010a). Yet, despite these controls, the net differences in successful remediation across levels of initial math deficiency remain sizeable.

To understand why this is a mystery, one must consider possible explanations for the first three observations:

1. most students who begin the remedial math sequence do not remediate successfully (do not achieved college-level math competency),
2. degree of math skill deficiency is associated strongly and inversely with the likelihood of successful remediation, and

3. students who do not remediate successfully are very unlikely to either complete a credential or transfer to a four-year institution.

One might conclude from these observations that remedial math students who have poorer math skills simply drop out of college earlier (on average) and at a higher rate than do better-prepared remedial math students – a conclusion that generally agrees with reasonable inferences from the literature (e.g., Hawley & Harris, 2005; Hoyt, 1999). In other words, one might guess that the problem is student retention or, more specifically, a correlation between math skills at college entry and duration of college attendance.

Generally speaking, one would anticipate that, if the “skill gaps” in successful remediation across levels of initial math deficiency (i.e., the differences in the likelihood of successful remediation in math between severely, moderately, and mildly deficient students) were a consequence of correlated differences in persistence, then controlling statistically for persistence would reduce or eliminate these gaps. The net differences in the likelihood of successful remediation across levels of initial math deficiency would be “explained away” by systematic variation in persistence. Yet, we find that sizeable differences remain even after accounting for systematic variation in persistence and a number of other contributing variables (Bahr, 2010a, 2010c).

As an alternative explanation, one might surmise that students who have greater math deficiencies are more likely than are their better-prepared counterparts to switch to alternative academic tracks that do not require college-level math competency, such as a terminal vocational program. If that were the case, one would expect that controlling statistically for persistence (in conjunction with the other variables discussed above, such as performance in first math, delay of first math, etc.) would *not* explain fully the gap in successful remediation, as it does not. Yet, one *would* anticipate that students who do *not* remediate successfully in math would exhibit a relatively higher rate of terminal credential completion, particularly the completion of vocational associate degrees and certificates.

However, although unsuccessful remedial math students experience a very small advantage in the likelihood of completing a terminal certificate, it remains that the vast majority neither complete a community college credential nor transfer to a four-year institution (Bahr, 2008, 2010b). Thus, the observed long-term outcomes of students do not appear to support a conclusion that students who have greater math deficiencies are migrating disproportionately to terminal vocational programs, unless such students simply are concentrating their efforts in vocational coursework without the intention of completing a vocational credential.

A third possible explanation may be drawn from Bahr’s (2010d) recent work on a behavioral typology of community college students. Bahr (2009a) found that students who have severely deficient math skills are concentrated disproportionately in a cluster of students he termed *experimental*. In fact, approximately one third of first-time students who began college with severe math deficiencies (requiring arithmetic or pre-algebra coursework), and one quarter of

first-time students who began college with moderate math deficiencies (requiring beginning algebra coursework), were found to be in this *experimental* cluster. The *experimental* cluster is characterized by a very low rate of success in all coursework, not just mathematics coursework. Thus, it may be that the very low rate of successful remediation among severely deficient students, and the modest rate of successful remediation among students who have moderate deficiencies, is in part a consequence of students' global patterns of behavior with respect to coursework. This would be a critically important finding in the face of assertions concerning the "failure" of remedial math programs based on the overall low rate of successful remediation in math (Bailey, Jeong & Cho, 2008).

As a final explanation, it is at least possible that students who have particularly poor math skills at college entry simply are enrolling in lower credit loads, on average. In other words, student's level of math deficiency may be correlated with student's credit course load, such that declining math skills are associated with a disproportionate likelihood of attending college part-time. In turn, part-time attendance may result in slower progress through the math sequence and, ultimately, lower levels of math skill attainment. This explanation points to the relatively crude nature of persistence (measured as duration of enrollment) with respect to measuring students' progress in their academic pursuits (Bahr, 2009b).

Describe the research method that will be used:

Summary

This study has two components, one hypothesis-driven and one exploratory. The hypothesis-driven component of the study (discussed at length in the preceding literature review) will test three possible explanations for the disparities in successful remediation in math (differences in the likelihood of attaining college-level math competency) between severely, moderately, and mildly deficient community college students, including:

1. differences across levels of initial math skill in students' focus on vocational coursework,
2. differences across levels of initial math skill in the students' mean rate of course success, and
3. differences across levels of initial math skill in students' credit course load per semester.

The purpose of the hypothesis-driven component of this study is to determine which, if any, of these factors contribute to the well-documented "skill gaps" in successful remediation in math.

In addition, this study will explore several other factors that may contribute to the "skill gaps" in successful remediation among math deficient students, but that have

not been considered prior work on this problem, including:

4. student's socioeconomic status,
5. student's level of academic integration,
6. student's employment status, and
7. student's immigration status.

Research that is not related to the focal problem of this study (i.e., remedial mathematics) has demonstrated that each of these variables play an important predictive role in students' progress and attainment in higher education generally (e.g., Pascarella & Terenzini, 2005). This present study will determine if these variables also contribute specifically to explaining the "skill gaps" in the likelihood of attaining college-level math competency.

In sum, this study will provide a detailed analysis of the relationship between community college students' math skill at college entry and college-level math skill attainment, with a focus on identifying previously unexplored factors that contribute to differences in the likelihood of successful remediation in math between severely, moderately, and mildly deficient students, while controlling statistically for those variables that have been addressed in prior work on this topic (e.g., Bahr, 2007, 2010a, 2010c).

Data

This study will make use of data drawn from the NCES Beginning Postsecondary Students Longitudinal Study (BPS) and the forthcoming Postsecondary Education Transcript Study (PETS) to execute a series logistic regression models (Long, 1997; Powers & Xie, 2000) of attainment of college-level math competency on selected variables. The cohort for BPS was drawn from the National Postsecondary Student Aid Study (NPSAS). BPS collects data on student and parent background characteristics, educational goals, financial aid, persistence, degree completion, and a variety of other measures. The cohort of interest in this study was sampled initially at the end of the first year in college in the Spring of 2004 (NPSAS:04) and then interviewed again in 2006 and 2009 (BPS:04/09).

In addition, the 2009 wave of data collection for BPS included the collection of student postsecondary transcripts (the PETS segment of BPS:04/09) for the prior six years. The PETS segment of BPS follows the basic framework employed in the PETS portion of the National Education Longitudinal Study (NELS; for details, please see Adelman, 2004). Although PETS data for BPS have not been released yet, a review of the PETS segment of NELS indicates that these data will comprise all postsecondary transcripts for a subsample of students who were interviewed in 2006 and 2009. This type of transcript-level information on enrollment and course taking patterns is necessary to conduct the analyses proposed here. [Note: Based on my conversations with Tom Weko of NCES, I have ascertained that the 2009 wave of BPS and the associated PETS data will be released no later than September 2010.]

The cohort of interest for this study is first-time students whose first college of attendance was a community college ($n = 6,331$), and whose first math course was remedial in nature. Remedial math courses include any nonvocational math course of a skill-level equal to, or less than, intermediate algebra or geometry. Estimates indicate that approximately one-third of first-time community college students enroll in remedial math coursework (Adelman, 2004; Bahr, 2010c).

Variables

[Note: Detailed information about the operationalization of the variables is provided in Appendix A.]

The dependent variable in this study is a dichotomous measure of whether or not a given student completed successfully a college-level math course at any time during the six years in which students' course-taking behaviors were observed in the 04/09 BPS/PETS data. The PETS data include carefully detailed math codes that distinguish key levels of remedial math (e.g., arithmetic, beginning/basic algebra, intermediate algebra), college-level math (e.g., college algebra, finite mathematics), advanced mathematics (e.g., calculus), and statistics (Adelman, 2004). For the purposes of this study, the successful completion of a college-level math course is defined as a passing grade (typically A, B, C, or Credit) in a college-level math course, an advanced math course, or a statistics course, which is consistent with the manner in which this dependent variable has been defined in prior work (e.g., Bahr, 2010b).

The focal independent variable in this study is the level of a student's first remedial math course. Based on the course coding system described by Adelman (2004), the final form of this variable will include three ordinal values: severe deficiency (pre-collegiate math and arithmetic), moderate deficiency (basic algebra), and mild deficiency (plane geometry and intermediate algebra).

The primary explanatory variables in this study fall into two categories: those derived from explicit hypotheses and those that will be explored because, although they have not been tested in prior work, there is reason to believe that they may contribute to variation in students' attainment of college-level math competency across levels of initial deficiency. The variables that were derived from the hypotheses include student's concentration in vocational coursework, student's mean rate of course success, and student's credit course load. Concentration in vocational coursework is operationalized as the proportion of all for-credit courses in a given student's record that were vocational in nature (Bahr, 2010d). Mean rate of course success is operationalized as the proportion of all for-credit courses in which a student achieved a passing grade (Bahr, 2010d). Finally, we will use the preexisting measure of part-time versus full-time enrollment status as the indicator of student's course load during the period of observation.

The additional explanatory variables that we categorize here as "exploratory" (i.e., not hypothesis-driven) include socioeconomic status, academic integration, employment status, and immigration status. Socioeconomic status is

operationalized as the highest level of education achieved by the student's mother or father. Academic integration is operationalized using the preexisting index of the overall integration experienced by the student. Employment status is operationalized as the average number of hours worked by a student per week during the first year of enrollment in postsecondary education. Immigration status is operationalized as the student's country of origin coupled with their citizenship status (e.g., foreign-born vs. U.S. citizen).

Finally, in order to explicate fully the relationship between the level of math at which students begin and their likelihood of attaining college-level math competency, we will control statistically for variables that have been found in prior work to be important predictors of college-level math skill attainment (see, for example, Bahr, 2010a) as well as several other important variables. These include: race/ethnicity, sex, age at college entrance, whether the student's primary language is English, rigor of math coursework taken in high school, high school GPA, amount of financial aid received by the student, duration of college attendance, student's grade in first math, length of delay between initial enrollment in college and the term of first math, student's self-reported academic goal, stopout behavior, whether a student's first English course (if any) was remedial or college-level in nature, stopout behavior, and reported learning disability.

Method of Analysis

Following Bahr's (2010a) framework for analyzing the contribution of various explanatory variables to the racial/ethnic gaps in successful remediation in math, we will estimate seven nested logistic regression models of the dichotomous indicator of the attainment of college-level math competency on selected variables. Similar to Bahr's work, the purpose of these models is to estimate the contribution of each potential mediating variable to the relationship between the level at which students begin the remedial math sequence and their likelihood of attaining college-level math competency. The first model will regress the dependent variable on the skill level of a student's first math course only. This model will provide a "baseline" estimate of the gaps in successful remediation across the several math entry points. The second model will add the control variables (e.g., race/ethnicity, sex, age, delay of first math) in order to estimate the size of this gap after established predictors are controlled statistically. The third model will add the exploratory variables (e.g., socioeconomic status, academic integration) for the purpose of estimating jointly the contribution of these variables to the "skill gaps" in successful remediation. The fourth, fifth, and sixth models each will include one of the hypothesis-driven explanatory variables (e.g., mean rate of course success, credit course load) to test the individual contributions of these variables to the "skill gaps" in successful remediation. The seventh model will include all independent variables simultaneously to estimate the size any residual "skill gaps" in college-level math attainment after all variables are controlled.

Uploaded Appendix Document(s):

- [Appendix A](#)

Project Description II

Will you use NCES target dataset? Yes

Please check all NCES datasets that apply

- Beginning Postsecondary Student (BPS) Longitudinal Study

Explain why each dataset best serves this research. Include a variable list for each dataset used.

This study will employ data from the NCES restricted-use 04/09 Beginning Postsecondary Students Longitudinal Study (BPS) and the supplementary Postsecondary Education Transcript Study (PETS). In correspondence with Tom Weko of the National Center for Education Statistics, I have ascertained that these data will be available no later than September 2010. Although the restricted-use 04/09 BPS/PETS data will not become available until after the grant period begins, the restricted-use BPS 04/06 data are available now, and both I and my graduate research assistant already have been granted license by NCES to work with these data. Thus, the work on the grant will begin in May, using the BPS 04/06 data.

During these first few months of the grant period, my graduate research assistant and I will construct the student cohort, conduct the preliminary analyses, complete a review of the literature, and write the first half of what will become the final paper. As soon as the 04/09 BPS/PETS data become available (no later than September 2010), we will begin work on the core analyses proposed for this study.

The BPS/PETS data are ideal for the analysis proposed here. These data constitute a nationally representative sample of first-time college students, and the segment of these first-time students who began in community colleges is sufficiently large to support the sophisticated analyses proposed for this study. The PETS segment of these data, which will parallel the PETS data for the National Education Longitudinal Study (NELS), provide detailed records of postsecondary course enrollments. When merged with the core BPS elements, the data set provides both information about students' personal characteristics, activities, and aspirations, as well as precise information about their academic and course taking experiences. To date, NELS is the only nationally representative dataset that includes postsecondary transcripts. Thus, utilizing the BPS/PETS data will provide an opportunity to execute a line of inquiry on a current cohort of community college students that is truly groundbreaking in scope and significance. A list of the variables that we will

employ, and detailed information about the operationalization of various measures, is provided in Appendix A.

Will you use NSF target dataset? No

Explain why each dataset best serves this research. Include a variable list for each dataset used.

Will you address the NPEC focus topic? Yes

If yes, please briefly describe:

In accord with the NPEC's focus this year, this study will employ socioeconomic status (measured as parental educational attainment) as one of four variables that will be explored with respect to the contribution each makes to the gaps in college-level math skill attainment between severely, moderately, and mildly math-deficient community college students. In addition to socioeconomic status, the other three "exploratory" variables include student's academic integration, employment status, and immigration status. These four exploratory variables will be tested in conjunction with the three hypothesis-driven variables that were addressed in detail in the methodology and literature review sections, namely concentration in vocational coursework, mean rate of course success, and credit course load.

Project Description III

Provide a timeline of key project activities:

May 2010 - Aug 2010

prepare cohort for analysis
execute descriptive analysis
write literature review and methods sections of paper
secure extension of NCES restricted-use license to include BPS/PETS 04/09

Sept 2010

obtain 2009 wave of BPS/PETS data

Sept 2010 - Nov 2010

prepare PETS transcript data for analysis

Nov 2010 – Jan 2011

execute analyses of college-level math skill attainment

Jan 2011 - Apr 2011

prepare results of study for presentation at annual meeting of AERA and write draft of paper

April 2011

present results at annual meeting of AERA and solicit input

May 2011

finalize work based on input received at annual meeting of AERA

May 2011 - June 2011

complete final manuscript

submit final manuscript (two copies) to AIR and NPEC

post final manuscript on the University of Michigan website

submit manuscript to *Research in Higher Education* for publication consideration

prepare press release

present results at the annual forum of AIR

List deliverables such as research reports, books, and presentations that will be developed from this research initiative:

In addition to presentation at the 2011 annual forum of the Association for Institutional Research, my graduate research assistant and I will apply to present the findings at the 2011 annual meeting of the American Educational Research Association (AERA). [Note: the budget for this grant proposes funding for travel to AIR for both my graduate research assistant and myself; our department will fund the trip to AERA.] We will make the final paper available on the University of Michigan website, will submit two copies to AIR and NPEC, and will seek publication of the findings in the journal *Research in Higher Education*. In conjunction with Joe Serwach of State Media Relations at the University of Michigan, we will prepare a press release

concerning the findings of the study for distribution to national media outlets. Perhaps even more important, I anticipate that the work on the data for this study will serve as a springboard to advance my larger, long-term research agenda and the dissertation work of my graduate research assistant, both of which will employ the 04/09 BPS/PETS that is proposed for use in this study. This undoubtedly will result in additional studies, presentations, publications, and many opportunities to incorporate graduate student training and mentoring in the research process.

Describe how you will disseminate the results of this research:

As noted in the previous section, two presentations (AIR and AERA) and one publishable research manuscript will be developed from the immediate objectives of this study. A copy of the final manuscript (two copies of which will be submitted to AIR and NPEC, respectively) will be posted and made publicly available on the University of Michigan website, and we will seek publication of this manuscript in the journal *Research in Higher Education*. Finally, we will prepare a university press release for distribution to national media outlets.

Provide a reference list of sources cited:

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IRB Statement

Statement of Institutional Review Board approval or exemption:

The proposed study is a secondary analysis of an NCES dataset. This study does not require or incorporate primary data collection and, consequently, does not require review by the University of Michigan IRB.

Statement of Use of Restricted Datasets

The proposed study will employ the restricted-use 04/09 BPS/PETS data. Both my graduate research assistant and I currently are licensed to use the restricted-use 04/06 BPS data. During the summer of 2010, we will work with NCES to ensure that our license is extended to include the restricted-use 04/09 BPS/PETS data upon its release. I already have contacted Tom Weko at NCES in this regard.

Biographical Sketch

Peter Bahr's Biography Sketch

Dr. Peter Riley Bahr, Ph.D., is an Assistant Professor of Education in the Center for the Study of Higher and Postsecondary Education at the University of Michigan (Ann Arbor, Michigan). His primary area of research is community college students, particularly, but not exclusively, postsecondary remediation in community colleges. His prior work on community college students includes eleven (of thirteen) peer-reviewed journal articles (in print or in press), four research reports, and his 2004 doctoral dissertation, all of which involved quantitative analyses of complex student data. Dr. Bahr has been the recipient of three research grants and two research contracts in the past five years for his work on community college students. His work has focused primarily on large-scale, statewide data that address California's community colleges, including extensive and detailed work with transcript data, which mirrors the work that will be done with course-taking records (the PETS data) in the study proposed here.

Prior to completing his doctorate in 2004, Dr. Bahr was employed as an educational researcher with the Chancellor's Office of California Community Colleges. During his work with the Chancellor's Office, Dr. Bahr completed a number of major research projects of statewide significance that addressed various methodological issues related to research on community colleges.

Dr. Bahr currently serves as a Consulting Editor for the journal *Research in Higher Education* and as a member of the Publications Committee of the Association for Institutional Research.

Education

Ph.D., Sociology, University of California – Davis, 2004 [Dissertation: *The Rough and Rocky Road of Remediation: Racial Inequalities in Postsecondary Remedial Mathematics*]

M.A., Sociology, University of California – Davis, 2000

B.S. (*Summa cum Laude*), Criminology, California State University – Sacramento, 1997

A.A., Liberal Arts, Solano Community College, 1995

Teaching Appointments

Assistant Professor, Center for the Study of Higher and Postsecondary Education, University of Michigan, 2009 – present

Assistant Professor, Department of Sociology, Wayne State University, 2004 – 2009

Research Appointments

Educational Researcher, Chancellor's Office, California Community Colleges, 2001 – 2003

Research Program Specialist, California Department of Education, 2000 – 2001

Funded Research (Since 2004)

2009 - 2010 Research Contract

My Role: Principal Investigator (quantitative portion of the study)

Funding Agency: EdSource / Chancellor's Office of the California Community Colleges

Project Focus: Course-taking patterns of underprepared community college students

Amount: \$60,000

2008 - 2009 Research Contract

My Role: Principal Investigator

Funding Agency: Chancellor's Office of the California Community Colleges
Project Focus: Behavioral typology of community college students
Amount: \$15,000

2007 - 2008 Research Grant
My Role: Principal Investigator
Funding Agency: AIR / NPEC
Project Focus: Efficacy of postsecondary remediation in community colleges
Amount: \$29,998

2006 - 2007 Research Grant
My Role: Principal Investigator
Funding Agency: AIR / NPEC
Project Focus: Academic advising and community college students' outcomes
Amount: \$29,999

2005 - 2006 Research Grant
My Role: Principal Investigator
Funding Agency: Wayne State University
Project Focus: Remediation and community college students' outcomes
Amount: \$10,000

Refereed Publications

Bahr, P. R. (2010). The bird's eye view of community colleges: A behavioral typology of first-time students based on cluster analytic classification. *Research in Higher Education*, 51, in press.

Bahr, P. R. (2010). Making sense of disparities in mathematics remediation: What is the role of student retention? *Journal of College Student Retention*, in press.

Bahr, P. R. (2010). Preparing the underprepared. An analysis of racial disparities in postsecondary mathematics remediation. *Journal of Higher Education*, in press.

Bahr, P. R. (2010). Revisiting the efficacy of postsecondary remediation: The moderating effects of depth & breadth of deficiency. *Review of Higher Education*, in press.

Bahr, P. R. (2009). Educational attainment as process: Using hierarchical discrete-time event history analysis to model rate of progress. *Research in Higher Education*, 50, 691-714.

Bahr, P. R. (2009). College hopping: Exploring the occurrence, frequency, and consequences of lateral transfer. *Community College Review*, 36, 271-298.

Felmlee, D. H., Flynn, H. K., Bahr, P. R. (2008). Too much of a good thing: Fatal attraction in intimate relationships. *Free Inquiry in Creative Sociology*, 36, 3-14.

Bahr, P. R. (2008). Cooling out in the community college: What is the effect of academic advising on students' chances of success? *Research in Higher Education*, 49, 704-732.

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

Bahr, P. R. (2007). Race and nutrition: An investigation of black-white differences in health-related nutritional behaviors. *Sociology of Health & Illness*, 29, 831-856. Reprinted in *Ethnicity, Health and Health Care: Understanding Diversity, Tackling Disadvantage*, edited by Waqar Ahmad and Hannah Bradby (2008, pp. 35-59). Malden, Massachusetts: Blackwell Publishing.

Bahr, P. R. (2007). Double jeopardy: Testing the effects of multiple basic skill deficiencies on successful remediation. *Research in Higher Education*, 48, 695-725.

Bahr, P. R., Hom, W., and Perry, P. (2005). College transfer performance: A methodology for equitable measurement and comparison. *Journal of Applied Research in the Community College*, 13, 73-87.

Bahr, P. R., Hom, W., and Perry, P. (2004). Student readiness for postsecondary coursework: Developing a college-level measure of student average academic preparation. *Journal of Applied Research in the Community College*, 12, 7-16.

Budget Requirements

Peter Bahr' Budget

Personnel-Time on Project
%(FTE) Academic Year: 26.00
%(FTE) Summer: 43.33

Personnel-Salary & Benefits
Academic Year: \$ 71500.00
Summer: \$ 23833.33

Graduate Research Assistant's Budget

Personnel-Time on Project
%(FTE) Academic Year: 15.67
%(FTE) Summer: 0.00

Personnel-Salary & Benefits
Academic Year: \$ 51584.00
Summer: \$ 0.00

Total Salary and Wages: \$36000.00

Travel: \$3,000

Other travel related expenses: \$0.00

Other research expenses: \$0.00

Total Request: \$39,000.00

Funding History

I have no prior, current, or pending support for the study proposed here. I have received grants from AIR/NPEC in the past, specifically in 06/07 and 07/08, for two separate research projects. Both studies were completed and submitted on time. The first of these two grant-funded studies was published in the journal *Research in Higher Education* (volume 49, pages 704-732), and the second was published in the journal *Review of Higher Education* (volume 33, pages 177-205).

Funding this project at this time is critical. As I am transitioning from a faculty appointment at Wayne State University to a faculty appointment University of Michigan, I also am in the process of transitioning from the fairly narrow focus of my prior research on California's community colleges to a much broader focus on national data sets, particularly BPS/PETS. Funding for this project would greatly accelerate this transition and allow me to advance my work in this area significantly. Equally important, my graduate research assistant (Chris Nellum) is at an important transitional stage in his doctoral work, at which he is beginning to frame what will become his dissertation research. Funding for the work proposed here will allow Chris to immerse himself fully in the new BPS/PETS 04/09 data, which will expedite his progress toward completing his dissertation and help prepare him for a productive career in educational research.

In addition to the funding for travel for both Chris and myself, and the funding designated for graduate student research support, I will be seeking a summer stipend (\$6,000) for Chris for his work on this project during the Summer of 2010. This stipend, if I am successful in securing it on his behalf, will be funded by the University of Michigan Spring/Summer Research Grants Program.