Does Faculty Employment Status Impact Developmental Mathematics Outcomes?

By David S. Fike and Renea Fike

ABSTRACT: This study assessed the impact of faculty employment status on student outcomes in developmental mathematics. The sample consisted of 1318 students enrolled in Intermediate Algebra classes at a community college. Multivariate analyses revealed that faculty employment status (full time or part time) was not associated with students’ final grades or completion rates. Faculty education level was correlated with course final grades, with faculty possessing graduate degrees having better student outcomes. Student gender, race, and age were associated with outcomes; semester hours attempted were not. These findings should help equip administrators to make informed decisions regarding faculty assignments that lead to improved student outcomes and help faculty to target interventions for “at-risk” students.

Part-time faculty had a huge impact on the quality of teaching and learning experienced by developmental students. There is a need to improve student outcomes in developmental programs at the community college. Foshay and Perez (2000) suggest that almost one half of all students entering community colleges require remediation. Hall and Ppton (2005) state that 3 out of 10 first-time freshman students enroll in developmental courses, and they further note that mathematics is the subject most essential to determining students’ success in degree attainment. McCabe (2000) confirms these findings, noting that only 42% of students leave high school with adequate skills for college-level work; of these underprepared students, 62% are deficient in mathematics. “More students begin college less prepared in math than in any other subject” (McCabe, 2003, p. 90). Accordingly, the population of students in the community college requiring developmental mathematics courses is enormous, and these developmental students have special needs in order to achieve successful outcomes (Boylan, 2002).

Policy makers and educators alike have recognized the need for improvement in student outcomes in developmental courses at the community college. In 1987, the Texas state legislature established the Texas Academic Skills Program (TASP), which according to Boylan was “probably the most advanced developmental education system in the country at that time” (Boylan & Saxon, 2006, p. 1). This program required testing and placement, comprehensive reporting, data collection, analysis, and feedback procedures from each higher education institution. More recently, the Texas Higher Education Plan established a goal of increasing by 50% the number of degrees, certificates, and other student successes within the state by 2015 (Texas Higher Education Coordinating Board, 2002). Additionally, the TASP was replaced by the Texas Success Initiative in 2003 by legislative edict. Finally, in 2005-06, a Developmental Education Subcommittee of the Texas P-16 Council was “charged with developing recommendations to effectively address developmental education in Texas” (Texas Education Agency, 2006, p. 4).

Similarly, higher education has a vested interest in improving student outcomes. The Commissioner of the Texas Higher Education Coordinating Board states, “When an institution admits a student, it accepts the responsibility to do everything it can to help that student succeed … this responsibility demands that colleges and universities embrace remedial or developmental education as part of their mission” (Martinez & Martinez, 2006, p. 11). Commonly embraced standards for assessing the effectiveness of developmental education programs within higher education include student completion rates and grades (Boylan, Bonham, White, & George, 2000). Thus, improving student outcomes in developmental mathematics, as a gatekeeper course, can contribute to attainment of goals shared by policy makers and higher education.

According to McCabe (2000), nearly half of community college remedial education students successfully complete their remedial education program; data also suggest that only about half of the students who enroll in a developmental mathematics course successfully complete the course (“Amarillo College,” 2006; Maricopa Community Colleges Institutional Effectiveness Office and Maricopa Governance, 2002; Office of Research and Planning, Germanna Community College, 2002; Washington State Board for Community and Technical Colleges, 2003). Given the emphasis on successful developmental education programs, these data reflect the need for improvements in developmental math-
emergencies; an examination of course delivery may provide insight for such improvements.

In Fall 2003, about two thirds of all faculty in community colleges were employed part-time (Cataldi, Fahimi, & Bradburn, 2005). Similarly, Boylan (2002) states that over 60% of the nation's community college developmental courses are taught by adjunct or part-time faculty. These large percentages suggest that part-time faculty have a huge impact on the quality of teaching and learning experienced by developmental students. In many cases, part-time faculty are also employed full time in non-teaching positions; from their full-time positions they are able to bring "real world" applications to the classroom and learning experienced by developmental students. In many cases, part-time faculty are also employed full time in non-teaching positions; from their full-time positions they are able to bring "real world" applications to the classroom. Additionally, part-time faculty often do not have offices and therefore hold reduced office hours, use technology less, keep reduced office hours, use technology less, have lower writing expectations of their students, have lower writing expectations of their students, and are not usually listed in the campus directory. Schuster (2003) notes that part-time faculty can be less accessible to students and less current in their academic disciplines. In addition, Benjamin's (2003) research indicates that part-time faculty keep reduced office hours, use technology less, and have lower writing expectations of their students. Haeger (1998) states that "part-time faculty often do not have offices and therefore hold limited or no office hours" (p. 85). Part-time faculty commonly do not have office telephone numbers and are not usually listed in the campus directory. These conditions make it difficult for part-time faculty to spend time with students.

Tinto's research suggests that student engagement, which may include time spent with faculty, is associated with persistence (Tinto & Russo, 1994). Jacoby (2006) has found that when community college students take a higher percentage of their courses with part-time faculty, they are less likely to persist towards their degree. A synthesis of the research suggests that faculty employment status (full time vs. part time) may be associated with student outcomes for the large population of students in developmental mathematics courses at the community college.

Given that there is a large population of students who enter higher education without being adequately prepared for college-level mathematics and community colleges have a responsibility for assuring that these students achieve successful outcomes in developmental mathematics courses, an assessment of the impact of faculty employment status on the performance of developmental mathematics students in the community college is warranted.

**Methods**

**Setting/Participants**

The study was conducted at an urban public community college in Texas, with an academic student population of approximately 10,000. The study population was comprised of 1318 students who enrolled in Intermediate Algebra classes in the Fall 2004 and Spring 2005 semesters; students were placed into Intermediate Algebra based on scores on a standardized placement test. Student scoring below a certain standard were assigned to a lower level mathematics course (Basic Mathematics or Beginning Algebra), and students scoring above a certain standard were assigned to a college-level mathematics course. Student enrollments were largely comprised of females (about 65%).

Students were primarily White (66%) with Hispanics comprising 25% of enrollments. Fewer than 10% of the enrolled students declared their race to be other than White or Hispanic. The mean semester hours enrolled was 10.2 ± 3.3 (mean ± SD). The mean student age was 23.9 ± 7.8 years. Student ages ranged from 16 to 65 years. Students who enrolled but withdrew from the course before the census date (e.g., the 12th day of the semester) were excluded. Additionally, students who audited the course or received an Incomplete were excluded from the study population. Excluded from analyses that included student race as a covariate were 18 of the 1318 students who did not self-declare their race.

**Design**

This was a retrospective study. The primary research hypothesis was that student outcomes (final grade, course completion status) in Intermediate Algebra differ based upon faculty employment status (full time vs. part time). For analytical purposes, students were assigned to two groups: those taught by full-time faculty and those taught by part-time faculty. Since students self-selected their class section (and, therefore, their instructor) and since the study was retrospective, random assignment of students to groups could not be achieved. So, equivalence of the two groups (students taught by part-time faculty, students taught by full-time faculty) based upon random assignment cannot be assumed (Bland, 2000). However, students at the college from which the sample was drawn are placed into Intermediate Algebra based upon scores on a standardized exam. Thus, the two student groups (those taught by full-time faculty and those taught by part-time faculty) in the study had roughly equivalent mathematics knowledge, skills, and abilities as assessed by a standardized exam.

**Analyses**

Minitab Release 14 statistical software was used to determine the adequacy of the sample size. The sample size of 1318 was large enough to assure an 80% likelihood of detecting a statistically significant difference of .2 between the final grade point averages of two groups (e.g., Group 1 GPA is 2.0 and Group 2 GPA is 2.2). Student and faculty data were retrieved from the institutional data warehouse, converted to SPSS Release 11.5, and validated prior to analysis. Univariate (descriptive) statistics were generated to reflect demographics. Bivariate analyses (correlation coefficients, t tests, Chi square, one-way
analysis of variance) were used to determine the relationship of individual independent variables with a dependent variable. Multivariate analyses (hierarchical multiple regression and logistic regression models) were used to assess the relationship of multiple independent variables to a dependent variable (Moore & McCabe, 2003; Utts & Heckard, 2006). Assumptions required for use of all statistical tests were verified. For all analyses, the level of significance was .05.

**Results**

*Univariate Analyses*

Student and faculty attributes are depicted in Table 1. Approximately 55% of the students enrolled in Intermediate Algebra completed the course with a grade of A through D; 48% completed with a grade of A through C. About 45% of the students enrolled in Intermediate Algebra either failed or dropped the course. The majority of students (59%) enrolled in sections taught by part-time instructors. About two-thirds of the students were taught by faculty with a graduate degree, and faculty were predominantly female and White. The mean student grade was 2.11 on the 4.0 scale. The grade distribution was somewhat uniform with the exception of a notably lower percentage of Ds than other letter grades.

**Bivariate Analyses**

Table 2 demonstrates that mean student grades in Intermediate Algebra differed in a statistically significant manner when stratified by student gender, student race, and faculty education level. Female students outperformed male students. Whites performed better than Hispanics, who in turn performed better than those of other races. Additionally, students performed better if the faculty member had a graduate degree. Mean student grades did not differ in a statistically significant manner based upon faculty employment status.

Table 3 (page 6) shows that student course completion, defined as completing Intermediate Algebra with a grade of A through D, differed in a statistically significant manner when stratified by gender. Females had a measurably higher course completion rate than males. Student course completion rates did not differ in a statistically significant manner based upon faculty employment status.

Student grades on the 4.0 scale in Intermediate Algebra were positively correlated with student age (r = .179, p < .001, n = 933). Course completion status was positively correlated with student age (Point Biserial: r = .108, p < .001, n = 1318). These findings suggest that older students tended to achieve higher grades and a higher rate of successful course completion than younger students. Student grades were negatively associated with semester hours attempted (r = -.113, p < .001, n = 925); as semester hours increased, grades decreased.

**Multivariate Analyses**

Multivariate methods (hierarchical multiple regression) were first used to assess the impact of the primary independent variable (faculty employment status) as well as covariates (student age, student race, student gender, semester hours attempted, faculty education level) on student final grades. As shown in Table 4 (page 6), faculty employment status (p = .112) and semester hours attempted (p = .099) were not significantly associated with student final grade. However, student age, student race, student gender, and faculty education level were all significantly associated with student final grades. This multivariate analysis suggests that (a) White students...
Table 3

Student Successful Course Completion Stratified by Faculty and Student Attributes

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty employment status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time instructor</td>
<td>305</td>
<td>56.1</td>
<td></td>
</tr>
<tr>
<td>Part-time instructor</td>
<td>415</td>
<td>53.6</td>
<td>.773, * p = .379</td>
</tr>
<tr>
<td>Faculty education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td>484</td>
<td>55.8</td>
<td></td>
</tr>
<tr>
<td>No graduate degree</td>
<td>236</td>
<td>52.4</td>
<td>1.315, * p = .252</td>
</tr>
<tr>
<td>Student gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>220</td>
<td>45.0</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>500</td>
<td>60.3</td>
<td>29.139, * p &lt; .001</td>
</tr>
<tr>
<td>Student race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>494</td>
<td>57.0</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>170</td>
<td>51.5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>48</td>
<td>46.6</td>
<td>5.892, * p = .053</td>
</tr>
</tbody>
</table>

Table 4

Multiple Regression Coefficients for Student Final Grade

<table>
<thead>
<tr>
<th>Term</th>
<th>B</th>
<th>SE</th>
<th>Beta</th>
<th>T</th>
<th>P</th>
<th>95% Cl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.354</td>
<td>.314</td>
<td>4.310</td>
<td>&lt;.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty employment</td>
<td>-.156</td>
<td>.098</td>
<td>-.053</td>
<td>-1.589</td>
<td>.112</td>
<td>[-1.365, -.346]</td>
</tr>
<tr>
<td>Faculty education</td>
<td>.272</td>
<td>.100</td>
<td>.089</td>
<td>2.725</td>
<td>.007</td>
<td>[.162, .382]</td>
</tr>
<tr>
<td>Ethnic group - White</td>
<td>.409</td>
<td>.182</td>
<td>.133</td>
<td>2.250</td>
<td>.025</td>
<td>[.082, .737]</td>
</tr>
<tr>
<td>Ethnic group - Hispanic</td>
<td>-.082</td>
<td>.196</td>
<td>-.025</td>
<td>.419</td>
<td>.676</td>
<td>[-.581, .410]</td>
</tr>
<tr>
<td>Gender - male</td>
<td>-.220</td>
<td>.099</td>
<td>-.072</td>
<td>-2.219</td>
<td>.027</td>
<td>[-.404, -.037]</td>
</tr>
<tr>
<td>Student age</td>
<td>-.027</td>
<td>.006</td>
<td>-.150</td>
<td>4.413</td>
<td>&lt;.001</td>
<td>[.009, .048]</td>
</tr>
<tr>
<td>Semester hours attempted</td>
<td>-.025</td>
<td>.015</td>
<td>-.057</td>
<td>-1.649</td>
<td>.099</td>
<td>[-.154, .003]</td>
</tr>
</tbody>
</table>

CONTINUED FROM PAGE 4

achieved higher final grades than students of color, (b) female students achieved higher final grades than males, (c) older students achieved higher final grades than younger students, (d) students taught by faculty with a graduate degree achieved higher final grades than those taught by faculty without a graduate degree, but (e) final grades of students taught by part-time faculty did not differ significantly from students taught by full-time faculty, and (f) final grades of students did not differ based upon semester hours attempted.

Next, multivariate methods (logistic regression) were used to assess the impact of independent variables on student successful course completion rates (see Table 5). Successful course completion was defined as achieving a grade of A through D in the course; a grade of F or a withdrawal was classified as not successful completion. Findings reveal that the only variables associated in a statistically significant manner with successful course completion were student race (White, * p = .049), student gender (* p = .001) and student age (p = .004). Male students were less likely to complete Intermediate Algebra successfully than females. White students were more likely to complete successfully than students of color; older students were more likely to complete successfully than younger students. Particularly noteworthy is the finding that faculty education level was associated with student successful course completion.

Collectively, the multivariate analyses (hierarchical multiple regression and logistic regression models) suggest that faculty employment status (full time or part time) does not have a significant impact on course final grades or course completion status. Although faculty education level (graduate degree or no graduate degree) does not have a significant impact upon student course completion rates, it is associated with course final grades. Secondary findings are that student gender, race, and age are associated both with course final grades and course completion rates. After controlling for covariates, semester hours attempted are not associated with final grades or course completion rates.

Table 5

Logistic Regression Model for Course Completion

<table>
<thead>
<tr>
<th>Term</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>P</th>
<th>Exp(B)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-.313</td>
<td>.367</td>
<td>.726</td>
<td>1</td>
<td>.394</td>
<td>.731</td>
<td>[.669, 1.394]</td>
</tr>
<tr>
<td>Faculty employment</td>
<td>.096</td>
<td>.120</td>
<td>.635</td>
<td>1</td>
<td>.426</td>
<td>1.101</td>
<td>[.868, 1.398]</td>
</tr>
<tr>
<td>Faculty education</td>
<td>.097</td>
<td>.122</td>
<td>.632</td>
<td>1</td>
<td>.426</td>
<td>1.102</td>
<td>[.868, 2.311]</td>
</tr>
<tr>
<td>Ethnic group - White</td>
<td>.419</td>
<td>.213</td>
<td>3.864</td>
<td>1</td>
<td>.049</td>
<td>1.521</td>
<td>[1.001, 2.128]</td>
</tr>
<tr>
<td>Ethnic group - Hispanic</td>
<td>.197</td>
<td>.231</td>
<td>.728</td>
<td>1</td>
<td>.394</td>
<td>1.218</td>
<td>[.775, 1.914]</td>
</tr>
<tr>
<td>Gender - male</td>
<td>-.573</td>
<td>.118</td>
<td>23.786</td>
<td>1</td>
<td>.000</td>
<td>.564</td>
<td>[.448, .710]</td>
</tr>
<tr>
<td>Student age</td>
<td>.023</td>
<td>.008</td>
<td>8.168</td>
<td>1</td>
<td>.004</td>
<td>1.023</td>
<td>[1.007, 1.039]</td>
</tr>
<tr>
<td>Semester hours attempted</td>
<td>-.025</td>
<td>.018</td>
<td>1.809</td>
<td>1</td>
<td>.179</td>
<td>.976</td>
<td>[.941, 1.011]</td>
</tr>
</tbody>
</table>

Discussion

This study has found faculty employment status is not a factor in student outcomes in developmental mathematics as measured by final course grades and students' course completion rates. Outcomes of students taught by part-time faculty in the study do not differ in a significant manner from outcomes of students taught by full-time faculty. This finding is inconsistent with findings of prior research studies that describe better outcomes for students taught by full-time faculty (Henebry, 1997; Penny & White, 1998). This study suggests that, even though the majority of community college faculty are part-time instructors, students are not adversely impacted. Faculty characteristics other than employment status (e.g., prior teaching experience, professional development, type of degree) may explain the difference between the findings of this study and those of other researchers who found faculty employment status statistically significant in relation to student outcomes.

Still focusing on faculty attributes, this study has found that faculty education level (graduate degree or no graduate degree) is associated with course final grades. The multiple regression model suggests that students taught by faculty with only a bachelor's degree may not achieve final grades as high as students taught by faculty with graduate degrees. This finding conflicts with a finding by Gupta, Harris, Carrier, and Caron (2006) indicating students taught by a lower ranked instructor were likely to receive better grades. The current study may suggest that mathematics faculty with advanced degrees have a better understanding of mathematical principles and concepts and convey this understanding in their instruction.

Another finding of the research is that students' final grades and course completion rates in Intermediate Algebra differ in a statistically...
significant manner based upon students’ gender. The finding indicates that female students outperform male students based on final grades. Additionally, the finding signifies that females are more likely to complete the course than males. Other researchers have documented that male students tend to outperform females in high school, developmental, and college-level mathematics (Penny & White, 1998); thus, the current finding is noteworthy and inconsistent with a common assumption that mathematics is a subject in which performance by males is expected to surpass that of females.

Formal hypothesis testing in the study shows that students’ final grades and course completion rates differ based upon race/ethnicity. There is an explicit difference in students’ final grades when comparing White students and others, with White students scoring higher and achieving higher completion rates. This finding reinforces the current concern over the growing minority population that is academically at risk.

This study also has revealed a positive association between student age and student outcomes. Course completion rates and final grades are positively associated with students’ ages. In other words, older students outperform younger students. This is consistent with findings by other researchers (Gupta et al., 2006; Penny & White, 1998). Finally, the research demonstrates that semester hours attempted are not associated with final grades or course completion rates. This is also consistent with the findings of other research (Gupta et al., 2006) indicating that credit-hour load is not a significant predictor of student grade.

**Limitations**

Several limitations to the study exist. The findings might only be applicable to developmental mathematics programs at community colleges; they may not be readily generalized to other types of higher education institutions. Also, the findings may not be generalized to student populations that are not similar with respect to demographics.

Although there are a number of controls within the research design methodology to eliminate threats to validity, there may exist variables that confound the research process. Students’ affective attributes (i.e., intrinsic motivation, commitment to task, initiative) may have a bearing on their performance in mathematics courses, yet it was not possible in the retrospective study to measure and assess the impact of these attributes. Similarly, faculty attributes such as concern for students’ success were not measured or included in the analyses. Faculty and student attributes such as these are potential sources of variability that could have a bearing on student outcomes in developmental mathematics courses.

Further, since the research design was retrospective and random assignment of subjects to treatments was not implemented, a true experimental design could not be achieved. Thus, causality could not be unequivocally established. Further research, including replication using different student populations or different environments (e.g., other community colleges), may serve to strengthen the findings of this study.

**Implications for Practice and Further Research**

According to Boylan (2002), “developmental programs using adjunct faculty were most successful when the adjuncts were fully integrated into the program and considered as valuable assets to the program” (p. 56). Integration into the program includes providing support mechanisms such as orientation manuals and programs, encouraging participation in departmental meetings, offering professional development through workshops and conference attendance, and incorporating mentoring programs. These practices can be implemented to enhance faculty training since training via degree program was shown to have a positive effect on student performance in this study.

Professional organizations that support developmental education include the National Association for Developmental Education (NADE), College Reading and Learning Association (CRLA), National College Learning Center Association (NCLCA), and College Academic Support Programs (CASP). Developmental education faculty should be encouraged to attend conferences and read current developmental education literature to help them become more knowledgeable and stay current with issues and trends in the field. Students will benefit if faculty are better informed of methods which facilitate learning by “at-risk” students.

Further Nutting (2003) states, “students and those who teach and support them benefit enormously from faculty members who are experts in their fields” (p. 33). Across the United States, there are currently only four universities offering graduate degrees with an emphasis in developmental education: Appalachian State University, Grambling State University, National-Louis University, and Texas State University. Thus, the opportunities to become an expert in the field of developmental education are limited. Findings from this study indicate an expansion of developmental education graduate programs may be warranted. The creation of an online developmental education program may also be timely. Since this study demonstrates that faculty with advanced degrees are likely to have better student outcomes than those without advanced degrees, it would be advantageous for developmental education faculty to have more opportunities to obtain a graduate degree or certificate.

The Southern Association of Colleges and Schools (SACS), a regional accrediting agency, requires faculty to possess a bachelor’s degree to teach developmental courses (Commission on Colleges, Southern Association of Colleges and Schools, 2001). To teach college-level mathematics courses, faculty must have at least a master’s degree and 18 graduate hours in mathematics. SACS has no similar standard requiring a graduate degree of faculty teaching developmental courses. However, the findings in this study suggest that graduate degrees make a difference in student outcomes. Additional studies to determine the association of faculty major field of study (e.g., master’s degree in mathematics, education, or mathematics education) and student outcomes may be informative. For example, examining outcomes for students taught by faculty with graduate degrees specifically in developmental education or mathematics education may increase understanding regarding the type of degree that enhances faculty success with developmental students.

Findings related to student characteristics and outcomes also indicate potential practical implications. Results regarding success by gender are counter to previous research showing male student performance to exceed that of female students in mathematics (Gupta et al., 2006). This finding suggests a need for further research to determine reasons males’ final course grades and completion rates may be lower than females. Additionally, the positive relationship between age and student outcomes suggests that younger students may have differing academic needs than older students, and academic interventions targeted at younger students may be warranted. An examination of effective curriculum and teaching/learning strategies documented in the literature may help delineate academic interventions most advantageous for male and female students across the age continuum.

**Opportunities to become an expert in the field of developmental education are limited.**

**Further Research**

Although there are a number of controls within the research design methodology to eliminate threats to validity, there may exist variables that confound the research process. Students’ affective attributes (i.e., intrinsic motivation, commitment to task, initiative) may have a bearing on their performance in mathematics courses, yet it was not possible in the retrospective study to measure and assess the impact of these attributes. Similarly, faculty attributes such as concern for students’ success were not measured or included in the analyses. Faculty and student attributes such as these are potential sources of variability that could have a bearing on student outcomes in developmental mathematics courses.

Further, since the research design was retrospective and random assignment of subjects to treatments was not implemented, a true experimental design could not be achieved. Thus, causality could not be unequivocally established. Further research, including replication using different student populations or different environments (e.g., other community colleges), may serve to strengthen the findings of this study.
As McCabe (2000) states, "the staggering numbers of minorities failing to progress educationally bodes ill for the country" (p. 38). Additional research must be conducted that addresses the disparity between White and minority academic achievement, especially given the rapidly changing student demographics in the U.S. (National Center for Education, 2000). Culturally sensitive learning environments that respect minority values and involve students with their institution and education via clear cut career goals (Blustein et al., 1986) should be developed.

Semester hours attempted have not been shown to be associated with student success in this and other studies (Gupta et al., 2006). This finding should be relayed to academic advisors who often counsel students on the number of hours they should attempt each semester. Research regarding the relationship between semester hours attempted and students' outside extracurricular commitments is implied as another potential area for investigation. Future studies including a broader array of student and faculty characteristics may yield additional insight into factors associated with student outcomes.

To improve the quality of higher education, administrators should encourage and provide support to developmental education faculty who pursue degrees and graduate certificates in developmental education. Hiring policies for developmental education faculty should favor individuals who have a formal education in the field of developmental education. Furthermore, institutions should review and refine policy regarding minimal requirements for developmental education faculty.

Finally, research to evaluate the relative effectiveness of various training programs and graduate education for developmental faculty is warranted. Interventions for "at-risk" students should be developed and research should be conducted to determine the efficacy of the interventions for students of various gender, ethnicity, age, and credit-hour load. Additionally, researchers should attempt to replicate the findings of this study at other institutions to help expand the application of results to other settings.

Conclusion
The primary focus of this study was to assess the impact of faculty employment status on student outcomes in developmental mathematics at a public community college. Multivariate analyses revealed that faculty employment status (full time or part time) did not have a significant impact on course final grades or course completion status. However, faculty education level (graduate degree or no graduate degree) was associated with course final grades, with faculty possessing graduate degrees having better student outcomes. Secondary findings indicated that student gender, race, and age were associated with both course final grades and course completion rates. Semester hours attempted were not associated with final grades or course completion rates.

In order to make informed decisions regarding faculty assignments that lead to improved student outcomes in developmental mathematics, administrators should carefully consider the educational background and professional development opportunities of faculty. The changing demographics and global economy of the 21st century continue to increase the need for an educated citizenry in the United States (National Center for Education Statistics, 2000). It is therefore imperative for faculty to target interventions for "at-risk" students and for leaders of postsecondary institutions to investigate and take action to improve educational outcomes for underserved student populations.

"The staggering number of minorities failing to progress educationally bodes ill for the country."

References
Arkansas Association for Developmental Education

“Giving Students the Opportunity to Shine”

The Arkansas Association for Developmental Education (ArkADE) promotes, through collaboration and professional development, the use of best practices in Developmental Education.

Each fall, ArkADE sponsors an annual conference for developmental educators and learning support personnel from 2- and 4-year colleges in Arkansas. Nationally and regionally known developmental educators and researchers serve as keynote speakers for the conference. Individual members provide concurrent sessions where practical applications of student success strategies are modeled and discussed.

For more information, contact:
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Shippensburg University

The Department of Teacher Education seeks candidates for the position of Assistant Professor of Reading/Literacy, effective August 2008.

Responsibilities: Teaching reading and literacy related classes at the undergraduate/graduate levels, supervising student teachers, working cooperatively with local schools, serving on department and university committees, advising students, working on departmental academic and non-academic initiatives.

Requirements: An earned doctorate in Reading/Literacy. (ABD at the time of hire may be considered). A terminal degree from an accredited institution is required for tenure.

Application Process: Qualified candidates should submit letter of interest, curriculum vitae, undergraduate and graduate transcripts (unofficial for application, official prior to interview), and the names and contact information for three references to: Dr. Janet Bufalino, Search Committee Chair, Teacher Education Department, Shippensburg University, 1871 Old Main Drive, Shippensburg, PA 17257.

Review of applications begins January 1, 2008 and will continue until the position is filled. Shippensburg University is an Equal Opportunity Employer. See http://www.ship.edu/HR/index.html for a complete position description and additional requirements/qualifications.

Indiana University of Pennsylvania

DEPARTMENT OF DEVELOPMENT STUDIES

Developmental Education Specialist

Full Time Tenure Track Position

IUP invites applications for a full time, Assistant level, tenure-track faculty position beginning August 2008 with the Department of Developmental Studies as a Developmental Education Specialist. Details regarding this generalist position in the field of developmental education with a specialty in developmental mathematics, application procedures, qualifications, and position requirements are available at www.iup.edu/humanresources/jobline/faculty. All applicants must be work eligible. Application deadline is December 15, 2007. IUP is an EOE M/F/H/V and a member of the Pennsylvania State System of Higher Education.

IUP