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Middle-Level Reform:

The Introduction of Advanced English and Science Courses

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Research studies and other literature have demonstrated the need for educational policymakers to initiate reform efforts designed to improve achievement for all students, and to close achievement gaps between students from diverse socioeconomic backgrounds (Landgraf, 2003; Lee, 2006; Singham, 2005). Recent reform in the United States has included policymaking intended to increase the number of students who acquire advanced skills through exposure to more rigorous curricula such as Advanced Placement (AP) courses (Lewis, 2006; Saunders & Maloney, 2005; Vail, 2006). This program evaluation examined policy changes in a large suburban district that adopted a Pre-AP philosophy that included the addition of (a) advanced English and science classes in middle schools, (b) open enrollment practices for all advanced courses, and (c) teacher vertical teams that promote advanced curriculum alignment and collaboration. These reforms were analyzed through the theoretical lens of social justice, to determine whether these policy changes addressed advanced course enrollment equity issues related to the socioeconomic background of students.

The Sunflower School District has demonstrated a commitment to academic excellence for 36 years. Students score above

Seven middle-level schools in a large suburban district created an open enrollment system for advanced English and science courses. The advanced courses provided students with an opportunity to learn through the use of primary sources, high-level literature, and a variety of projects. A vertical teaming process in each middle–high school attendance area was instrumental in promoting teacher collaboration and acceptance of a Pre-AP philosophy intended to expand student access to advanced courses. The vertical teams included representative teachers of advanced courses from across grade levels. The adopted philosophy focused on connecting a wider base of students to the benefits of a rigorous, college preparatory curriculum. Although all students were allowed to enter advanced courses without prerequisite criteria and teachers were encouraged to work across vertical teams to provide scaffolding to prepare students for advanced work, students from low socioeconomic backgrounds were still significantly less likely to enroll in advanced coursework. Qualitative data underscored the importance of positive teacher attitudes in implementing an open enrollment policy. Teachers were encouraged by the success they experienced in teaching students who would have been excluded from a more selective program. Unfortunately, equity of opportunity in open enrollment policies may not be sufficient to encourage greater participation of minority and low socioeconomic status students in academically advanced programs. Educators must maintain high expectations for all students, provide equitable opportunities for all students to engage in curricula that exceed the minimum standards for academic content areas, and provide support for students to be successful in these courses.

summary

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their state and national peers on standardized assessments (Kansas State Department of Education [KSDE], 2005). *Expansion Management Magazine* has given the district a Gold Medal rating for 16 consecutive years. There are seven middle-level schools (grades 7 and 8) and five high schools (grades 9–12) that serve approximately 13,500 secondary students. Approximately 16% of students district-wide are eligible for free or reduced lunch, and the racial/ethnic composition of the district is approximately 80% Caucasian (KSDE, 2005). In recent years, this Midwestern suburban district, which is adjacent to a large metropolitan area, has experienced an increase in the number of students who are considered "at risk" due to categorization in "sub-groups" (No Child Left Behind Act [NCLB], 2001) such as low socioeconomic status (SES) or English-language learners. During the same period of time, NCLB introduced requirements for continuous improvement in reading, math, and science achievement for all students.

The Sunflower School District enacted system-wide reform in the middle-level schools to create advanced English and science classes during the 2003–2004 school year. Prior to this innovation, students were assigned to interdisciplinary teams of teachers with general English and science courses composed of heterogeneous groups. The only advanced courses offered during the years of interdisciplinary teaming were in mathematics, and often students were "cross-teamed" to enroll in a course such as algebra instead of the at-level courses of Math 7 or prealgebra. The dissolution of the teaming concept in favor of a departmental scheduling model made it logistically possible for students to enroll in either at-level or advanced courses in mathematics, science, and/or English.

Research has demonstrated the importance of a rigorous curriculum for all students (Grier, 2002), yet studies have also shown that minority students and students from lower income backgrounds are severely underrepresented in advanced classes or AP courses (Ndura, Robinson, & Ochs, 2003; Solorzano & Ornelas, 2004). During this time period, a shift in enrollment practices occurred at the high school level. Student placement in honors classes was transformed to an open enrollment philosophy, whereby

any student interested in taking an honors-level class could enroll without prerequisites such as a minimum grade point average or standardized test score in the content area. The district's intent in implementing the new middle-level advanced classes, which also used an open-enrollment process, was to align secondary course offerings and enrollment practices with the College Board's Pre-AP philosophy, as evidenced in the Board's purpose statements:

- Pre-AP is a concerted effort to fulfill the College Board's mission to prepare, inspire, and connect students to college and opportunity.
- Pre-AP prepares growing numbers of students, especially those traditionally underrepresented in AP courses, for the challenges offered by the AP program.
- Pre-AP teaches and reinforces crucial academic skills in the greatest possible number of students, beginning in the elementary and middle school years.
- Pre-AP enables a broader segment of the student population to benefit from a rich and rigorous curriculum. (College Board, 2000, p. 1)

Secondary school reform associated with the adoption of this Pre-AP philosophy in the Sunflower School District included (a) the innovation of middle-level advanced English and science courses, (b) the introduction of the open enrollment practices for advanced and honors courses, and (c) the formation of five vertical teams of teachers in each high school attendance area. The College Board (2002) described vertical teams as consisting "of teachers within specific subject areas, committed to improving student preparation through increased teacher-to-teacher communication and vertical alignment of the curriculum" (p. 1). English and science teachers who taught sections of advanced or honors courses in grades 7–12 were invited to participate in periodic after-school meetings to engage in dialogue regarding curricular and pedagogical issues.

The purpose of this program evaluation was to explore the systemic changes associated with the Pre-AP program in this

district using a mixed methods approach. The process and experiences that contributed to the implementation of advanced courses were examined through enrollment criteria, vertical teaming processes, and advanced course enrollment in middle and high schools during a 4-year period. The qualitative component of this program evaluation examined how open enrollment and vertical teaming practices were applied to the innovation of advanced English and science courses at the middle level in one school district. Quantitative investigative questions included:

1. Were there significant differences in middle school advanced course enrollment according to socioeconomic classification of students?
2. Were there significant changes in student enrollment in high school honors English 9 after the implementation of advanced courses at the middle level?

The mixed methods approach to this study was in part due to the investigators' connection to the district in the roles of middle school principal and director of curriculum and instruction, which provided access to quantitative data, as well as educators who were directly involved with the reform efforts. Ercikan and Roth (2006) advocated a mixed methodology design for educational research, arguing that "all phenomena and all knowledge simultaneously have quantitative and qualitative dimensions" (p. 22). The data and findings associated with this program were examined through the theoretical lens of social justice and issues of class, including the ideology of sorting and "ways that education systems perpetuate the inequalities that are present in society" (Choules, 2007, p. 160).

Background Literature

Differentiated Educational Opportunities

Research findings regarding the sorting of students into advanced, at-level, or remedial classes according to perceived

ability have demonstrated mixed results in general learning outcomes (mean scores) for all students (Rees, Brewer & Argys, 2000; Terwel, 2005). Factors that have shown improvement for student learning include "first-class learning opportunities" (Burris & Welner, 2005) and "optimum and consistent conditions" for instruction (VanDeWeghe, 2005). Research literature suggests that ability grouping has positive results for high-achieving, or gifted, students (Hallinan, 2000; Terwel, 2005). However, ability grouping may have negative effects for students with a history of low achievement (Gamoran, 1992; Terwel, 2005; Wheelock, 1992; Zimmer, 2003). "By introducing a new category into schooling, boundaries are erected between one category of students and another that are difficult to cross" (Terwel, 2005, p. 659). Assignment of students into different academic tracks has been shown to contribute to stratification or polarization of groups, such as antischool and proschool orientations (Van Houtte, 2006). In addition, teachers' attitudes toward students and instructional planning to provide academic rigor may differ depending on the level of perceived academic ability in a particular track (Caughlan & Kelly, 2004; Van Houtte, 2006). Equity in learning opportunities for all students may be hindered through practices such as educational stratification, when combined with limitations on student access to advanced courses through use of prerequisite criteria such as top-notch scores on standardized achievement tests.

Some studies have demonstrated a trend toward detracking, or a return to heterogeneous grouping for courses (Rubin & Noguera, 2004). Research at a suburban high school in Long Island included findings that detracking in all content areas led to an increase in the number of students (including racial/ethnic minority students) enrolled in Advanced Placement courses, improved scores on standardized assessments, and higher percentages of students earning the prestigious Regents diploma upon graduation (Garrity, 2004). Schools may also choose to provide higher level courses with open enrollment for students to determine their own placement (Yonezawa, Wells, & Serna, 2002).

Detracking and open enrollment are both strategies aimed at promoting equity of educational opportunities for all students and assist schools in resisting the natural sorting process that is embedded in American public education (Spring, 1988, 1997, 2006). Apple (1990) stated,

> It [educational policy] fails to see the connection between, say, the "production" of certain kinds of people and knowledge on the one hand and the reproduction of an unequal society which establishes the roles for which these agents are produced on the other hand. (p. 18)

Through examination of underlying assumptions or belief systems, a reform effort such as the creation of advanced courses may avoid unequal access by implementing policies such as open enrollment and practices such as active recruitment and support of students from poor or minority backgrounds.

Advanced Placement Courses and the Pre-AP Program

The College Board (2002) described the Pre-AP concept as the belief that "all students deserve an opportunity to participate in rigorous and challenging courses" (p. 1). The embodiment of this philosophy includes professional development for educators to work within a district to increase the percentage of students who enroll in high school Advanced Placement courses. Beginning in 2006, the Board posted a disclaimer regarding the term *Pre-AP*. The Board discouraged schools from using Pre-AP as part of a course title to avoid limiting access to rigorous or college preparatory classes (College Board, 2006).

When criteria for enrollment in Advanced Placement courses are too narrow, such as dependence upon one standardized test score for admission, the program continues to involve the "upper- and middle-class White students it has traditionally served" (Klopfenstein, 2003, p. 43). Concerns for maintaining the

rigor and quality of AP courses may arise when admission criteria are too wide, with the view that including unprepared students "demoralizes those students and necessitates a dilution of the curriculum for all students" (Klopfenstein, 2003, p. 42). Students of color and students from poverty backgrounds continue to be underrepresented in AP classes, a fact that has implications for educational and professional outcomes for these individuals (Ndura et al., 2003; Norman, Ault, Bentz, & Meskimen, 2001).

A specific strategy in the Pre-AP plan to increase students' readiness for AP classes is the formation of vertical teams. These teams comprise representative teachers of advanced courses "from feeder schools so that articulation of the curriculum both across schools and grade levels is achieved" (College Board, 2002, p. 2). For example, a vertical team may include as part of its membership a 7th-grade advanced English teacher, a 10th-grade honors English teacher, and a 12th-grade Advanced Placement English teacher. Some of the findings from a College Board (2002) study of AP vertical teams for English included: (a) a slight improvement in the level of rigor in the English college preparatory curriculum, (b) an increase in "access to students taking AP courses" (p. 6), and (c) a slight increase in the number of minority students engaged in Pre-AP instruction.

Middle-Level Education and Young Adolescents

A common theme in the literature related to middle-level education is that young adolescents have unique educational needs that require schools to create programs that are academically excellent, developmentally responsive, and socially equitable. The National Forum to Accelerate Middle-Grades Reform (2003) created a vision statement with expectations that middle-level schools

> (a) challenge all students to use their minds well, providing them with the curriculum, instruction, assessment,

> support, and time they need to meet rigorous academic standards, (b) create small learning communities of adults and students in which stable, close, and mutually respectful relationships support all students' intellectual, ethical, and social growth, and (c) work to educate every child well and to overcome systematic variation in resources and outcomes related to race, class, gender, and ability. (p. 1)

Middle-level students undergo a variety of physical, intellectual, social, and emotional changes with the onset of puberty and the transition from elementary to secondary education. Jackson and Davis (2000) stated that there is a "requirement for equity in outcomes for all groups of students, regardless of their race, ethnicity, gender, family income, or linguistic background" (p. 11). Outcomes regarding academic achievement need to include high expectations for all students. Curricula need to connect to standards, reflect the concerns of young adolescents, and align with assessment. The ability of a school or district to adapt to the changing needs of diverse student populations is important in order to provide equitable opportunities for all young adolescents to learn and to experience positive growth.

Program Description: Middle-Level Advanced English and Science Courses

Advanced English and science courses were added to the Sunflower School District's Middle School Program of Studies in 2002. The courses addressed the core district objectives for seventh and eighth grade and extended student learning through research, the use of primary sources, high-level literature, and a variety of written projects. The district established guidelines that encouraged an open enrollment policy based on interest and desire for more rigorous curricula. The middle schools included a letter with the enrollment packet each student received to explain the expectations for the advanced English and science classes,

and a copy of the letter with parent and student signatures was required for the open enrollment course selections.

Although all middle schools accepted open enrollment, three middle schools encouraged high-achieving students to enroll in advanced English or science by mailing a letter to parents and students that communicated recommendations for advanced courses. These students were identified through sixth-grade Measures of Academic Progress (MAP) scores, academic grades in the content areas, and teacher recommendations. According to the district's program of studies, advanced English and science courses in the middle schools were open to all students based on interest and desire for more challenging curricula, and advanced courses were available for students who had demonstrated the ability and the desire to undertake more challenging work.

Methodology

Sample

The Sunflower School District was located in a suburb contiguous to a metropolitan city in the Midwest. The district supported 37 elementary schools, 7 middle schools, 5 high schools, 1 alternative education school, and 1 vocational program. Enrollment stood at approximately 28,574 students, one of the largest school districts in Kansas. The district middle schools served approximately 4,300 students in grades seven and eight. The pupil-teacher ratio for the secondary schools in the district was 19:2. Approximately 16% of students were eligible for free or reduced lunch. District student ethnicity included 7.2% African American, 7.7% Hispanic, 79.8% White, and 5.2% from other racial/ethnic backgrounds. The graduation rate was more than 90% (KSDE, 2005).

Mixed Methods Design

The purpose of this investigation was to gain a deeper understanding of the changes associated with the Pre-AP program

in this district, and to evaluate the impact of the middle-level reform effort to introduce advanced English and science courses. The procedures for gathering and analyzing data regarding these district-wide changes were based on an ex post facto mixed methods strategy. This ex post facto investigation of the Pre-AP program was designed after the advanced courses and open enrollment practices were adopted and implemented by the district.

A mixed methods study involves "both numeric information as well as text information so that the final database represents both quantitative and qualitative information" (Creswell, 2003, p. 20). The rationale for including qualitative and quantitative dimensions into the research design includes the ability "to simultaneously answer confirmatory and exploratory questions" within one study (Anfara, 2006, p. 18). The qualitative and quantitative data work together in this study to elucidate the program innovations (advanced middle-level English and science, open enrollment, and vertical teaming) to answer the exploratory question, and to examine any changes in outcomes (advanced course enrollment) through the confirmatory questions. Qualitative and quantitative findings inform one another to present a more complete understanding of what occurred within the district, and the implications of these findings relative to equity of educational opportunities for all students.

Data Collection

Multiple data sources collected for this program evaluation included (a) school district enrollment handbooks and enrollment letters to parents and students related to middle-level advanced English and science courses; (b) advanced English, advanced science, and honors English 9 course and school enrollment data for 2003, 2004, 2005, and 2006; and (c) unstructured interviews with teachers of advanced and honors English courses, middle and high school counselors and administrators, and members of the curriculum and instruction department in the school district.

Interview participants were purposively selected based on their experiences or knowledge of the implementation of reforms. To maintain confidentiality, the names of the interview participants were known only to the co-investigators. The researchers used an unstructured approach during interviews to "focus on the *particular* phenomena being studied" from the unique perspective of the individual's role, thereby exchanging "generalizability and comparability for internal validity and contextual understanding" to explore the processes within the systemic reforms (Maxwell, 2005, p. 80).

Qualitative Analysis

How were open enrollment and vertical teaming practices applied to the innovation of advanced English and science courses at the middle level in one school district? To explore this research question, the co-investigators conducted analyses of public documents and individual interview data that were gathered in person, via telephone, or through e-mail. The qualitative data analysis used a conceptual framework with three categories informed by the investigative questions: (a) relationships and communication among stakeholders, (b) issues of social class, and (c) reflective practices of educators. Reflective practices were defined as "intellectual and affective activities in which educators engage to explore their experiences" (Caruthers, in press).

Data coding for the interview transcriptions and document analysis was conducted according to grounded theory, an inductive process for studying phenomenon, which "is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon" (Strauss & Corbin, 1990, p. 23). The inductive process for analyzing the data consisted of open coding, axial coding, and selective coding (Creswell, 2003; Miles & Huberman, 1994; Strauss & Corbin, 1990). Open coding involved the creation of more specific categories according to connections between district-level reform initiatives, communication with students and parents,

and the experiences of teachers, counselors, and administrators during the implementation of middle-level advanced courses.

These categories were then examined through the lens of a theoretical framework based on promoting social justice through equity of educational opportunity for students from diverse socioeconomic backgrounds. Finally, the "story from the interconnection of these categories" was developed through selective coding (Creswell, 2003, p. 191). The co-investigators worked independently to analyze the available data, then shared information to check the accuracy of results, and later collaborated to create the narrative for the program description. Member checking was achieved by e-mailing interview data to the interview participants to check for accuracy and for permission to include specific quotations in publications.

Quantitative Analysis

The quantitative analyses explored two questions: (a) Were there significant differences in middle school advanced course enrollment according to socioeconomic classification of students? and (b) Were there significant changes in student enrollment in high school honors English 9 after the implementation of advanced courses at the middle level? Data were collected for a 4-year period, and were disaggregated according to socioeconomic status. Enrollment data for middle school and high school advanced courses were entered into the SPSS computer program. A preliminary analysis of the means was conducted for each measure for the district, and for each of the middle and high schools. The data were further analyzed to determine statistical significance.

The first question was investigated using a Pearson chi-square analysis. Middle school enrollment data for advanced English and for advanced science were pooled for the 7 middle schools for the 3-year period of implementation of advanced courses. The data were disaggregated according to enrollment status and students' socioeconomic status as determined by full-pay lunch classification or eligibility for free or reduced lunch status. A

crosstab test of dichotomously coded variables and enrollment data was used to test statistical significant differences using an alpha of .05.

For the second question, the analysis of enrollment data began by converting the actual student numbers in honors English 9 to percentages in order to control for fluctuations in overall enrollment. Data for multiple years were combined through a pooling process where the results for the 2 years prior to the implementation of advanced middle-level English courses were compared with results for the 2 years following the innovation. Using an alpha of .05, a paired samples *t* test was conducted for each measure, both for all students and for low-SES students. The unit of analysis was the school level, and the independent variable was time, coded with a *0* to represent the 2 years prior to advanced middle school courses, and a *1* to represent the 2 years after courses had been implemented. The dependent variable was the percentage of students enrolled in honors English 9.

Quantitative Findings

Middle School Advanced Course Enrollment Trends

During the first 3 years that advanced courses were offered in seventh and eighth grade, the percent of the total student population in each middle school that enrolled in advanced classes ranged from 19.7% to 35.5% in advanced English, and from 18.1% to 31.6% in advanced science. The proportion of all students who enrolled in advanced classes increased during the 3 year period in all of the schools except for Middle School 3, which experienced a 1% decline in English and a 4.6% decline in science. There were large discrepancies between all students and the percentages of low-SES students who enrolled in the advanced English and science classes (see Figures 1 and 2).

Data demonstrated school-level differences in the percentage of low socioeconomic students enrolled in advanced English or science classes, with 4 schools enrolling higher percentages of

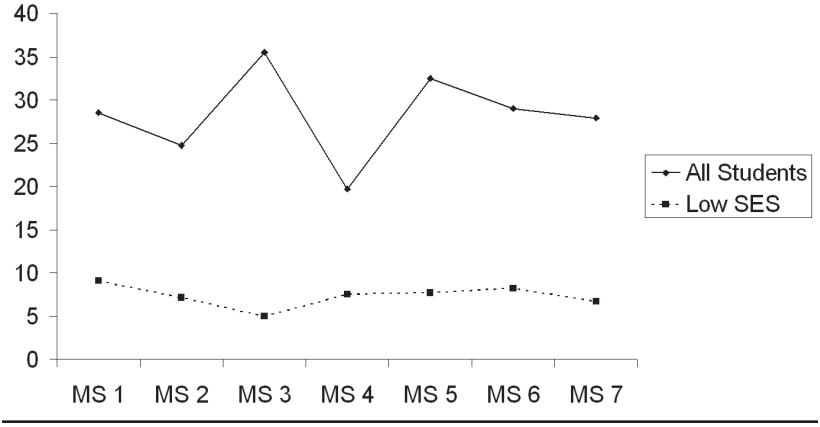

Figure 1. Average advanced English course enrollment percentages for all students and low-SES seventh- and eighth-grade students enrolled during 2004, 2005, and 2006.

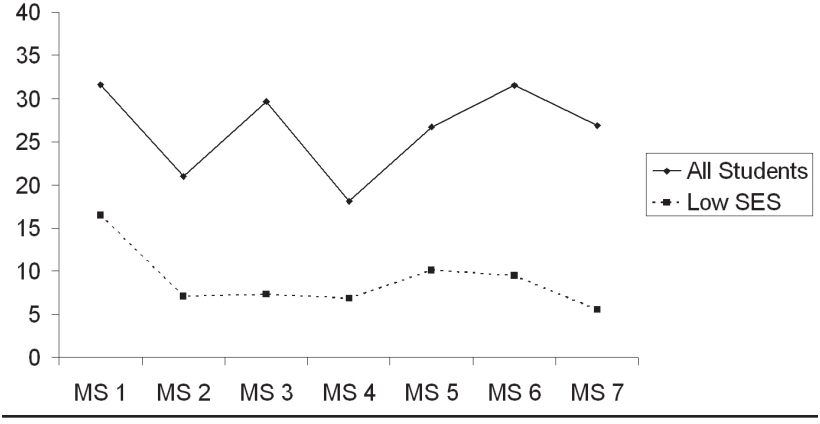

Figure 2. Average advanced science course enrollment percentages for all students and low-SES seventh- and eighth-grade students enrolled during 2004, 2005, and 2006.

low-SES students in advanced science than in advanced English. Middle Schools 2 and 4 had the highest percentages of low-SES student populations within the district, and also had the lowest percentages of overall advanced course enrollment.

The first quantitative investigative question asked: Were there significant differences in middle school advanced course enroll-

ment according to socioeconomic classification of students? To address this question, a chi-square test of independence was conducted with a dichotomously coded variable for socioeconomic status (full-pay or free/reduced lunch classification of students) and a dichotomously coded variable for enrollment (enrolled in an advanced course or not enrolled). The chi-square analysis indicated that there was evidence supporting a statistically significant difference in enrollment in advanced English ($p < .001$) and in advanced science ($p < .001$) between the free/reduced lunch and the full-pay lunch students. Cramer's V for English was .206, and for science was .188, signifying small effect sizes for both advanced English and advanced science. In both cases, free lunch status was associated with a lower than expected frequency of enrollment in advanced courses.

High School Honors English 9 Enrollment Trends

Middle school advanced English course enrollment was compared to high school enrollment for honors English 9 during the 4-year period 2003 to 2006. The percentage of the total student population enrolled was greater in the middle schools, with high school enrollment ranging from 11.9% to 26.1% of freshman. Data for high school students enrolled in honors English were analyzed for the 2003 and 2004 years (prior to the advanced English middle school course offering) and for 2005 and 2006 (the first years to enroll students who had the opportunity to take the advanced English classes in middle school). For the 3 high schools with fewer low-SES students, the number of students enrolling in honors English 9 maintained or experienced a slight decline. For High School 2 and High School 5, both with larger numbers of low-SES students, the number of students enrolling in honors English 9 increased (see Table 1).

Although the raw data for the honors English 9 enrollment indicated fluctuation in the percentages of enrollment for all students and low-SES students, dependent samples *t* tests did not indicate that these changes were statistically significant. Results

Table 1

High School Enrollment in Honors English 9 Before and After Implementation of Middle-Level Advanced English

	All Students				Low SES			
	Before		After		Before		After	
High School	Number	Percent	Number	Percent	Number	Percent	Number	Percent
School 1	286	23.9%	272	23.6%	3	2.91%	7	4.46%
School 2	136	11.9%	156	14.2%	11	2.19%	17	2.39%
School 3	268	26.1%	254	25.6%	9	3.47%	7	1.78%
School 4	187	20.5%	172	18.0%	6	3.30%	13	3.78%
School 5	163	15.0%	198	18.4%	3	.079%	10	1.74%

Note. Enrollment data includes all ninth-grade students and low-SES students during 2002–2003/2003–2004 (prior to middle-level advanced English classes) and 2004–2005/2005–2006 (after middle-level advanced English classes).

from the *t* tests regarding percentages of ninth-grade students enrolled in honors English 9 prior to and after the introduction of advanced English and science in middle schools follow: (a) all ninth-grade students, $t(8) = 0.146$, $p = .468$, (b) full-pay ninth-grade students, $t(8) = 0.286$, $p = .596$, and (c) free/reduced-lunch students, $t(8) = 1.017$, $p = .191$). In all cases, there were no statistically significant increases in enrollment. For the all ninth-grade students, Cohen's *d* was .093, using the standard deviation of the mean difference as the denominator, which represents a very small effect size.

In the 2 years following the introduction of open advanced courses enrollment at the middle schools, the high school enrollment in honors English 9 remained fairly stable. Interestingly, advanced English and science course enrollment at the middle schools involved a higher percentage of students than percentages of students enrolled in honors English 9 at the high schools, both for all students and low-SES students.

Qualitative Findings

Increasing Student Access to Advanced Courses: Open Enrollment and Vertical Teaming

One of the themes throughout the interviews related to educators who reflected on their experiences and chose to advocate for wider access to advanced courses for all students. The origins of the Pre-AP philosophy began with a new principal in one of the district's high schools. At the time, there were strict district-wide guidelines for admission to high school honors classes, including teacher recommendations, academic grades in the content area, and scores on standardized assessments. The principal recalled his philosophy with regard to these prerequisites:

> I had a problem with criteria to determine who would be in, because some students never had a chance to grow and change. When I was in grade school, my academic

> record didn't give me a chance. As a teacher of honors classes and later a principal, I always gave students the right to be in honors classes, even if they didn't have the criteria. Some kids did drop the class, but there were more kids who went in there and flourished. . . . You open the door, but don't drop your standards. (interview, August 1, 2006)

There was a teacher at this same school who also served as the division coordinator for the language arts department who shared this same view. With advocacy from teachers in English, science, and social studies, the faculty agreed to try open enrollment for honors and AP courses. The district's central administration approved this pilot program; the intended outcome was to increase enrollment in Advanced Placement courses. According to the principal, after implementing wider access to these classes, many teachers communicated that they wished they had changed the strict criteria sooner.

The principal stated that, "If we're going to help all students meet their potential, you don't put up barriers and deny them access to the system—that's not a wise use of resources" (interview, August 1, 2006). The program was shared during district curriculum council meetings among the content area teachers. Elementary, middle, and high school curriculum councils for content areas such as language arts and science had existed in the district for 9 years, and they were composed of teacher volunteers from the schools and division coordinators. Council meetings provided an opportunity to gather teacher input related to curriculum and instruction, and they served as an avenue to share strategies for improving student achievement.

Members of the curriculum and instruction department, the associate superintendent for secondary schools, and the district superintendent observed the open enrollment pilot program. The Sunflower School District's central administration recommended that an open enrollment process be implemented throughout all of the high schools in the district. In addition to open enrollment practices, each school attendance area in the

district created a new structure for collaboration among English and science teachers. Vertical teams were an essential element in preparing all students for rigorous course offerings, and teachers in grades 7–12 formed the first English and science vertical teams. There was one vertical team for English and one for science in four out of the five high school attendance areas. The teams engaged in regular dialogue to improve content knowledge, to share effective pedagogical practices, to examine long-term student growth, and to align the curriculum across middle and high school grades for English and science.

After the first 2 years, teachers in grades 5 and 6 were also invited to participate in the vertical team monthly meetings. For example, a typical language arts vertical team might consist of one 5th- and 6th- grade teacher from each elementary feeder school, a 7th- and 8th-grade advanced English teacher from each middle school in the attendance area, a high school honors English teacher from 9th, 10th, and 11th grade, and one 12th-grade AP English teacher. One high school language arts teacher on the original vertical team stated:

> Every teacher and every course should prepare students with a rigorous curriculum. Vertical teaming is essential for open enrollment. You just can't do one without the other. The success is really dependent on the teachers' attitudes and the students' motivation. I've seen really nontraditional [non-White, low-SES, low grade point average] students that no one would have expected in an AP course succeed with the will and support. (interview, August 8, 2006)

The strongest theme from the qualitative document analysis and interview data related to expanding student access to advanced coursework. However, the findings suggested that this effort may create conflict within school cultures entrenched in sorting practices based on selective criteria. From 2002 to 2006, four out of the five high schools followed an open enrollment procedure. The faculty and administration of the remaining high

school did not choose to adopt open enrollment policies, nor did the high school form vertical teams at the beginning of the Pre-AP movement. The middle-level teachers in this high school's attendance area attended the vertical teams at two of the other high school sites and participated in the process of aligning the district-wide curriculum for grades 7–12, but they did not engage in discussions regarding the academic performance of students who had been in their English and science classes. The high school that maintained selective criteria required a score of 90% or higher on the eighth-grade Iowa Test of Educational Development (ITED) and "A" grades in the content area in order to be recommended to enroll in honors classes. An appeal policy existed; however, one middle school teacher observed that:

> Some kids decide they don't want to go through that, and then they stop seeing themselves as wonderful readers and writers. For them to be dropped out of the program is really unfortunate for them. Just because a kid might have had a C in English or communications class, or they didn't have the percentage in reading comprehension, doesn't mean that they can't do well. (interview, January 16, 2007)

The high school that maintained specific admission criteria for advanced course enrollment had a reputation within the school district as a "high-performing" school, and the student scores on AP exams were the highest in the district. With regard to the lens of social class, this school had the smallest percentage of low-SES students in the district (3.4% of students were categorized as free or reduced lunch for the 4-year period of analysis). AP course enrollment data supported a different trend for the school (a 5% decline in AP course enrollment from 2005 to 2006) than for the district (a 6% increase in AP enrollment). A new principal was hired at the end of the 2005–2006 school year, and the decision was made by teachers and administration to begin open enrollment practices for honors classes, and to

engage fully in the vertical team process during the 2006–2007 school year.

Findings supported the need for staff to advise students of Advanced Placement potential. This advising process appeared to be essential to the expansion of enrollment in the more rigorous courses. All 10th-grade students in the high school that originated open enrollment completed the Preliminary SAT (PSAT). The data were used to help students identify strengths and weaknesses necessary for college study, and to design a program of study that promoted enrollment in precollegiate curricula. As the principal noted, "We want all students to see themselves as AP candidates. The use of the data helps students to find their areas of strength and build on those strengths" (interview, January 26, 2007). A middle school language arts teacher described vertical team conversations that followed the progress of specific students:

> What's interesting about going to those vertical team meetings is I would hear teachers talking about those kids who had made C's and D's in regular English, and you would think that these kids had no business being in an AP class. But they were the favorites of the AP teachers and really learning. (interview, January 16, 2007)

Since 2002, enrollment in Advanced Placement courses has increased by 21.8% across the district's five high schools. A 2006 report issued by the Director of Assessment and Research found that student completion of AP exams was the highest in the district's history. However, the mean results for all exams administered during the most recent school year demonstrated the lowest pass rates in the district's history. Even with this issue, the percentage of district students (74%) scoring 3, 4, or 5 on AP exams far exceeded the percentage of students in the state (65%), region (66%), and nation (60%). The 2006 Advanced Placement report provided disaggregated data according to high school, grade level, and ethnicity, but did not provide data according to socioeconomic status.

Limitations

The generalizability of the findings from this study is limited by several factors. The sample size and data set for quantitative analysis were small, consisting of one school district and 4 years of enrollment data. Causal inferences regarding the Pre-AP program and changes in enrollment must be made with care, due to the fact that this is an ex post facto nonexperimental investigation. However, the mixed methods design supports deeper understanding of programmatic and philosophical reform within the school district system. Continued program evaluation is needed to contribute to the confirmation of findings or the formation of any causal relationship between (a) the introduction of the Pre-AP program (middle-level advanced courses, open enrollment, and vertical teaming) and (b) increased access to advanced courses for all students.

Discussion

Findings from this program evaluation were examined through the theoretical lens of social justice concerning issues of socioeconomic status. Issues of equity with regard to educational opportunities are an important consideration for the introduction of advanced courses and associated policies for enrollment. Students from low socioeconomic and/or racially and ethnically diverse backgrounds enroll in advanced or AP courses at a lower rate than White peers (Klopfenstein, 2004). Equity is hindered when students are assigned to advanced or at-level courses based on criteria such as standardized test scores, while "open choice-processes for students and parents," may contribute to equity of opportunity (Terwel, 2005, p. 665).

The quantitative findings suggest that students from low socioeconomic backgrounds are less likely to enroll in advanced coursework, even when open enrollment policies exist that enable all students to enter honors courses without prerequisites such as a teacher or counselor recommendation,

minimum grade point average, or standardized test scores. Clark (2006) described "the importance of the policy web as a way of developing coherent and unified policy designed to achieve social justice for all" (p. 272). This school district was successful in promoting a policy change that was ultimately adopted in all secondary schools to encourage open enrollment for advanced courses. However, data from this program evaluation imply that a policy such as open enrollment, while intended to promote equity for all students, does not necessarily impact the significant differences that exist in advanced course enrollment between low-SES students and their peers. Extending the invitation to all students did not guarantee that they enrolled, therefore supportive measures are needed to prepare and inspire students from all socioeconomic backgrounds to pursue advanced courses.

The coding of interview data and school documents, integrated with the statistical analysis of course enrollment data led to the emergence of themes that included a strong desire among educators to improve learning opportunities for all students and to preserve the status of the district as a first-class organization. School administrators were engaged in monthly professional development activities aimed at closing the achievement gap. Each school sent representatives (teachers, counselors, administrators, and school psychologists) to district Data Mentor Cadre meetings to apply available data to school and student improvement goals. In addition to analyzing student achievement data, mentors examined course consumption and performance of students in certain level courses. The curriculum and instruction department also worked with the Cadre on creating a climate for all students to be successful. Some of these efforts included national presenters, such as Pedro Noguera, who talked about expectations, access, and equity. Another recent session focused on Professional Learning Communities.

Curriculum development for the middle-level advanced English and science courses was a critical element in the Pre-AP program development in the district. Differentiation of curriculum in the middle schools involved dissolution of the interdis-

ciplinary teaming model to facilitate the logistics of scheduling students into different levels of English and science, as well as the discontinuation of the advisory program. Teaming and advisory are middle school structures designed to support the developmental and social needs of young adolescents (Jackson & Davis, 2000). These reform efforts were viewed by some middle-level educators as having both positive and negative results, as one language arts teacher stated:

> When I look back on what I used to do, and what I do now, I kind of feel sad. I do feel the advanced English and vertical teaming with the [high school] teachers have helped to get kids ready for high school. It's lovely that I get these really bright kids now, but I feel badly for the kids that are not getting this enrichment. (interview, November 13, 2005)

Teacher interview participants expressed consensus that vertical teams helped to facilitate relationships among the educators who volunteered to attend the monthly meetings as grade-level representatives. Some vertical teams held meetings at a different school within the high school attendance area each month, with the teachers in that building having the responsibility for creating the agenda and facilitating the discussion. As described in the background literature, there is not a wide research base supporting the relationship between the vertical teaming model and improved achievement for all students (College Board, 2002). Professional development for all teachers has been shown as necessary to inform practices for curriculum and instruction that improve student learning and positively impact all students (Supovitz & Christman, 2005).

The adoption of the Pre-AP philosophy began in one high school, and during a period of 5 years, expanded to influence district-wide policies and practices. The addition of advanced English and science classes in the middle schools, the open enrollment concept for advanced courses in secondary schools, and the creation of vertical teams were intended to increase the percentage of

students enrolled in honors and Advanced Placement courses in high school. Data from this program evaluation demonstrated a perception among educators that these reform efforts had created positive opportunities for professional collaboration. The data did not demonstrate significant changes in advanced course enrollment for all students, or for low-SES students.

Educational Implications and Recommendations for Further Research

Education serves many purposes, yet in the post-NCLB milieu, the potential to promote social justice through educational equity may be overshadowed by the demand for academic improvement that can be measured by standardized assessments. Dewey (1967) posed a question that is highly applicable today:

> Is it possible for an educational system to be conducted by a national state and yet the full social ends of the educative process not be restricted, constrained, and corrupted? Internally, the question has to face the tendencies, due to present economic conditions, which split society into classes, some of which are made merely tools for the higher culture of others. (pp. 97–98)

The findings from this program evaluation support the need for educators to maintain high expectations for all students, and provide equitable opportunities for all students to engage in curricula that exceed the minimum standards for academic content areas.

Sorting students into different levels, such as honors, at-level, or remedial English classes, may deny certain students access to a rigorous curriculum. Ayalon (2006) found that differentiation of curricula was related to increasing socioeconomic and gender inequity in advanced course enrollment. In addition, within heterogeneous classrooms, the teacher may not be consciously aware that treatment of students is biased as a result of

the "labels" of particular students (Caughlan & Kelly, 2004; Van Houtte, 2006). Hobbs (1975) stated that "labels are powerful instruments for social regulation and control" that are frequently used to limit opportunities and "to exclude 'undesirables' whose presence in society in some way offends, disturbs familiar customs, or demands extraordinary efforts" (p. 67).

Teachers must maintain high academic expectations for all students, regardless of the perceived level of rigor in a course, in order to avoid the potential negative impact on student learning that may result from the stratification of courses (Rees et al., 2000; Terwel, 2005). When different levels of courses do exist, policies such as open enrollment provide an equal opportunity for all students to enter honors or advanced courses without prerequisite criteria. However, equitable opportunity must involve more than providing the same services to every student. Plans to provide support for traditionally underrepresented groups to receive adequate preparation and encouragement to enroll in advanced courses should serve as a companion to open enrollment policies.

Once enrolled in advanced courses, some students will need additional academic assistance. As part of the plan to support students in advanced courses, the Sunflower School District is creating plans for a new program for students enrolled in high school honors classes, which will include a one-week summer program and will implement study community meetings during the school year. In an effort to support all students with their transition from middle school, the high school that originated the open enrollment and vertical teaming process is planning to provide a freshman orientation program on the first day of school, a strategy that has been linked to a reduction in dropout rates (Mizelle, 1999). Parent involvement is another component of successful support structures for low-SES students, and the nature of homework assignments may have an impact on academic improvement (Battle-Bailey, 2004).

This program evaluation examined the implementation of a Pre-AP philosophy intended to expand student access to advanced courses through the introduction of an open enroll-

ment policy, vertical teaming, and creation of advanced English and science classes in middle schools. Future research studies should examine (a) the interaction of race/ethnicity and socioeconomic status with regard to advanced course enrollment, (b) longitudinal course enrollment data to determine whether the gap between free or reduced lunch students and full-pay students has decreased, (c) the effectiveness of policies and practices that are intended to promote social justice and equity of educational opportunities for all students, (d) the manner in which school-level pilot programs influence district-level reform, and (e) exploration of the impact that middle-level course stratification has on the promotion of academic achievement, developmental responsiveness, and social equity.

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