

New Teachers at Middle School Campuses:
A Multi-Year Statewide Study

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Abstract

In this study, we examined the five most recent years (2003-2004 through 2007-2008) of Texas educational data concerning new teachers employed at middle school campuses (low of 495 campuses to a high of 517 campuses). The extent to which differences were present between middle school campuses with the highest beginning teacher percentages and middle school campuses with the lowest beginning teacher percentages was analyzed. For all five years of data, middle schools with the highest percentages of minority students, with the highest percentages of economically disadvantaged students, and with the highest percentages of at-risk students tended to have the highest percentages of beginning teachers. Working conditions for beginning middle school teachers appeared to be quite challenging. Implications of our findings are discussed.

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Teacher quality has been a major concern since the early 1980s and continues to be a critical concern for educators, researchers, and policymakers (Stedman, 2004). The quality of teaching and teacher quality has been highlighted by many researchers (e.g., Darling-Hammond, 2000; Darling-Hammond & Sykes, 2003; Obama, 2005; Rice, 2003; Rowland & Coble, 2005; Whitehurst, 2003) as the U.S. is challenged by the No Child Left Behind Act in reforming its educational system (Joftus & Maddox-Dolan, 2002). Teacher quality is an important factor in educational reform because teachers are a key in promoting student achievement (Alliance for Excellent Education, 2004; Darling-Hammond, 2000; Darling-Hammond & Sykes, 2003). Whitehurst (2003) stressed, “Teacher quality is affected by general knowledge and ability, certification and licensure, experience, intensive and focused in-service training, and alignment between teacher training and standards based reform” (p. 40). According to Boyd, Lankford, Loeb, and Wyckoff (2005), a highly qualified teacher is defined by their certification exam scores and experience.

Numerous researchers (e.g., Allen, Palaich, & Anthes, 1999; Darling-Hammond, 1998; Ingersoll, 1999, 2002; Nieto, 2003; Orfield & Lee, 2005; Peske & Haycock, 2006; Rowland & Coble, 2005) have documented that new teachers with no experience are often the ones assigned to teach large numbers of at risk-students, who are the students who need highly qualified teachers, at the poorest-performing schools. More often than not, new teachers rather than more experienced teachers are assigned to teach the lowest-achieving students (Alliance for Excellent Education, 2004, 2008). Claycomb and Hawley (2000) asserted that new teachers need from 3 to 7 years in the profession to acquire the needed expertise and capitalize on their student’s

learning. Provasnik and Dorfman (2005) added that beginning teachers with less than 3 years of experience are not as effective as teachers who have more experience, with new teachers typically being the least effective of all teachers. According to the Education Trust (2008), new teachers, with no prior teaching experience and who are still learning the profession, are less likely than experienced teachers to be as effective in enhancing their students' learning and in preparing their students to meet the required state standards.

Differences in students who new teachers are assigned to teach and the lack of professional support, advice, and preparation on how to help challenging students be successful may contribute to the attrition of beginning teachers (Alliance for Excellent Education, 2004, 2005). Clear evidence exists that teacher attrition is high for teachers during their beginning years in the profession (e.g., Ingersoll & Smith, 2003). Ingersoll (2003a) acknowledged that beginning teachers leave the profession at troubling rates; in fact, almost 50% of them leave the profession within five years.

Ingersoll and Smith (2003) asserted that turnover seriously impacts workplaces where extensive interaction is required among participants and that are contingent on "commitment, continuity, and cohesion among employees" (p. 31). As a result, teacher turnover creates staffing problems and negatively impacts student achievement and the school climate (Ingersoll & Smith, 2003). Many schools have a difficult time of retaining teachers; however, highest-need schools that have higher percentages of economically disadvantaged students lose more teachers each year than wealthier schools that have lower percentages of economically disadvantaged students (Ingersoll, 2003b). Martinez-Garcia, Slate, and Tejeda-Delgado (2009) recently documented that teacher turnover was nearly twice as high in Texas school districts with 75% or higher percentages of students who were economically disadvantaged than schools with 25% or lower

percentages of students who were economically disadvantaged. Because many of our nation's schools lose as many teachers as they hire each year, they are considered to be "revolving doors" (National Commission on Teaching and America's Future, 2002, p. 6).

In a recent meta-analytic and narrative review of the research on teacher attrition and retention, Borman and Dowling (2008) concluded the following:

The evidence reviewed in this meta-analysis suggests that there are large numbers of characteristics of the environments in which teachers work that predict attrition. These characteristics include those noted prominently by Ingersoll (2001a, 2001b), including organizational features of school. However, our results indicate that they also include salaries and instructional resources provided to teachers, other organizational attributes of schools, and, also important, the characteristics of schools' student bodies. (p. 398)

Congruent with the assertion of Ingersoll (2001a, 2001b) and Borman and Dowling (2008) that the characteristics of students predict teacher attrition, Martinez-Garcia et al. (2009) documented that student characteristics were related to the school district's teacher turnover rates in the State of Texas.

At times, new teacher responsibilities can be very demanding. Bolich (2001) offered two key factors that influence beginning teacher retention in a Southern Regional Education report. One factor was the "amount of support and guidance they receive" and the second factor was the "assignments they are given" (p. 5). The assignment that new teachers are given is an important factor in retaining them in the profession (Bolick, 2001); however, many new teachers are assigned to teach at challenging schools with higher percentages of minority students and higher percentages of economically disadvantaged students (Education Trust, 2008; Jepsen & Rivkin, 2002; Peske & Haycock, 2006; U.S. Department of Education, National Center for Educational

Statistics, 2000). In a comprehensive multi-year study, Martinez-Garcia and Slate (2009) revealed that higher percentages of new teachers were employed in Texas elementary schools that had higher percentages of students who were minority and higher percentages of students who were economically disadvantaged than at Texas elementary schools that had lower percentages of students who were minority and lower percentages of students who were economically disadvantaged.

Teachers new to the profession may have a variety of fears; one fear is that they feel poorly prepared to meet the needs of students from different backgrounds (Wilson, Ireton, & Wood, 1997). This fear is not without a basis, as Hirsch (2005), among other researchers, asserted that “Not all teachers are adequately prepared to meet the diverse needs of today’s students” (p. 1). In fact, the current Secretary of Education, Arne Duncan, recently criticized most of the nation’s 1,450 universities, colleges, and departments of education as doing a “mediocre” job in preparing future teachers for the contemporary classrooms (*The Chronicle of Higher Education*, 2009, para 2).

In our opinion, unfortunately, many teachers who would be considered highly qualified are not teaching in schools where their expertise and skills are needed the most. Administrators can alleviate new teacher assignments by reducing the numbers of students assigned to new teachers, not assign them the most challenging students, and minimize their service and extracurricular assignments (Stansbury & Zimmerman, 2000). Policies that offer more support for beginning teachers are needed (DePaul, 2000) and administrators who will facilitate new teachers’ progress for them to reach their full-capability as educators (Public Education Network, 2003).

Significance of the Study

In research to date concerning new teachers, the primary emphasis has been placed at the school district level. No published empirical studies were located in which new teacher employment at middle schools was addressed. In addition, a longitudinal analysis of new teachers employed at middle schools was not located. In this study, we examined five years of statewide data on new middle school teachers. As such, our study may provide more detailed information than is currently available on the characteristics of middle schools employing higher percentages of beginning teachers.

Purpose of the Study

Our purposes in conducting this study were twofold: (a) to analyze middle school campus characteristics that might be related with beginning teacher employment; and (b) to determine the extent to findings were consistent across five years of statewide data. That is, we wanted to understand better middle school campus environment in which beginning teachers were employed.

Research Questions

The following research questions were addressed in this study: (a) what is the difference between middle school campuses with the highest percent of beginning teachers and middle school campuses with the lowest percent of beginning teachers in their percent of minority students, percent of economically disadvantaged students, and percent of at-risk students?; and (b) To what extent are findings consistent across five years of statewide data?

Method

Participants

Data from all Texas middle public schools for the school years 2003-2004, 2004-2005, 2005-2006, 2006-2007, and 2007-2008 were utilized in this study, with the exception of charter schools. The research questions previously delineated were individually addressed for each of the five years obtained from the State of Texas educational database. Each year the Texas Education Agency posts online aggregated data for each of its school campuses and school districts through the Academic Excellence Indicator System (AEIS).

Middle schools, in this study, were formed into two groups. A frequency distribution of beginning teacher percentages was conducted separately for each year of data analyzed here. Then cutoff scores were generated such that middle schools were grouped into one set of schools that had the lowest 1/3 of beginning teacher percentages and into a second set of schools that had the highest 1/3 of beginning teacher percentages. Middle schools that had the middle 1/3 of beginning teacher percentages were eliminated from any statistical analyses in this study. With this formation of groups, the number of middle schools was 990, 1004, 1004, 1018, and 1034 respectively for the 2003-2004 through the 2007-2008 school years.

Instrumentation

Archival data were acquired on all public middle school campuses in the State of Texas for the 2003-2004, 2004-2005, 2005-2006, 2006-2007, and 2007-2008 school years. Through accessing and downloading files from the Academic Excellence Indicator System, data that were reported by each elementary school campus were gathered. Specifically, data on the number and percent of beginning teachers, the average beginning teacher salary, the average teacher salary, percent of minority enrollment, percent of economically disadvantaged students, and the percent

of at-risk students at each elementary school campus were obtained. Texas, through the TEA, defines a beginning teacher as “a teacher reported with zero years of experience” (Texas Education Agency Public Education Information Management System [PEIMS], 2007). Thus, the term beginning teachers is synonymous with new teacher. Because the data for each of these variables is self-reported by the individual school campuses, traditional reliability and validity estimates are not appropriate. Rather, any errors in these self-reported figures are assumed to be minimal.

Procedures

After accessing the Texas Education Agency’s Academic Excellence Indicator System website, each specific year of interest was accessed. Connection to each AEIS data file of interest (i.e., campus, teacher, and student) was made. Data from each data file were downloaded as .dat files and then merged using the *Statistical Package for the Social Sciences-Version 15*. Prior to conducting statistical analyses, the basic assumptions underlying use of multivariate and univariate parametric procedures were checked and determined to be within normal limits.

Results

2007-2008 School Year

A multivariate analysis of variance (MANOVA) was performed to determine whether (a) the percent of minority students, (b) the percent of economically disadvantaged students, and (c) the percent of at-risk students enrolled on campus differed as a function of beginning teacher percentages grouped into the lowest 1/3 and the highest 1/3. This analysis yielded a statistically significant result, $\Lambda = .94$, $p < .001$, $n^2 = .07$. Univariate follow-up F s revealed statistically significant differences for percent of minority students, $F(1, 1032) = 77.32$, $p < .001$, $n^2 = .07$;

for the percent of economically disadvantaged students on campus, $F(1, 1032) = 54.89, p < .001, n^2 = .05$; and for the percent of at-risk students on campus, $F(1, 1032) = 34.82, p < .001, n^2 = .03$. The effect size for the percent of minority students was moderate whereas the effect sizes for percent of economically disadvantaged students and for the percent of at-risk students were small (Cohen, 1988). In all three cases, middle school campuses in the highest 1/3 of beginning teacher percentages had statistically higher percentages of minority students, higher percentages of economically disadvantaged students, and higher percentages of at-risk students than did middle school campuses with the lowest 1/3 of beginning teacher percentages. Table 1 contains the descriptive statistics for these three dependent variables.

Table 1

Descriptive Statistics for Variables of Interest by Beginning Teacher Groups for the 2007-2008 School Year

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Percent of Minority Students on Campus			
Lowest 1/3 of Beginning Teacher Percentages	517	50.30	30.68
Highest 1/3 of Beginning Teacher Percentages	517	66.42	28.21
Percent of Economically Disadvantaged Students			
Lowest 1/3 of Beginning Teacher Percentages	517	48.89	25.31
Highest 1/3 of Beginning Teacher Percentages	517	60.10	23.34
Percent of At-Risk Students			
Lowest 1/3 of Beginning Teacher Percentages	517	40.35	19.10
Highest 1/3 of Beginning Teacher Percentages	517	46.93	16.68

Next, following a frequency distribution for the percent of minority student enrollment, two groups were created: group one consisted of those middle school campuses in the lowest one-third of minority student percentage and group two consisted of those middle school campuses in the highest one-third of minority student percentage. Then analysis of variance (ANOVA) procedures were performed to determine whether the percent of beginning teachers differed as a function of minority student enrollment. The ANOVA was statistically significant, $F(1, 1026) = 56.08, p < .001, n^2 = .05$, and revealed that the percent of beginning teachers was statistically significantly higher in the elementary school campuses with the highest one-third of minority students ($M = 9.95, SD = 7.47$) than in the campuses with the lowest one-third of minority students ($M = 6.68, SD = 6.50$).

2006-2007 School Year

A MANOVA was conducted to ascertain whether (a) the percent of minority students, (b) the percent of economically disadvantaged students, and (c) the percent of at-risk students enrolled on campus differed as a function of beginning teacher percentages grouped into the lowest 1/3 and the highest 1/3. This analysis yielded a statistically significant result, $\Lambda = .92, p < .001, n^2 = .08$. Univariate follow-up F s revealed statistically significant differences for percent of minority students, $F(1, 1016) = 89.61, p < .001, n^2 = .08$; and for the percent of economically disadvantaged students on campus, $F(1, 1016) = 61.91, p < .001, n^2 = .06$; but not for the percent of at-risk students on campus, $F(1, 1016) = 2.42, p = .12, n^2 = .002$. Effect sizes for the two statistically significant results were moderate (Cohen, 1988). Middle school campuses in the highest 1/3 of beginning teacher percentages had statistically higher percentages of minority students and higher percentages of economically disadvantaged students than did middle school

campuses with the lowest 1/3 of beginning teacher percentages. Table 2 contains the descriptive statistics for these three dependent variables.

Table 2

Descriptive Statistics for Variables of Interest by Beginning Teacher Groups for the 2006-2007 School Year

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Percent of Minority Students on Campus			
Lowest 1/3 of Beginning Teacher Percentages	509	49.38	30.61
Highest 1/3 of Beginning Teacher Percentages	509	66.99	28.73
Percent of Economically Disadvantaged Students			
Lowest 1/3 of Beginning Teacher Percentages	509	49.46	24.82
Highest 1/3 of Beginning Teacher Percentages	509	61.38	23.50
Percent of At-Risk Students			
Lowest 1/3 of Beginning Teacher Percentages	509	50.34	24.34
Highest 1/3 of Beginning Teacher Percentages	509	52.72	24.62

Next, following a frequency distribution for the percent of minority student enrollment, two groups were created: group one consisted of middle school campuses in the lowest one-third of minority student percentage and group two consisted of middle school campuses in the highest one-third of minority student percentage. Then an ANOVA was performed to determine whether the percent of new teachers differed as a function of minority student enrollment. The ANOVA was statistically significant, $F(1, 1010) = 67.43, p < .001, \eta^2 = .06$, and revealed that the percent of beginning teachers was statistically significantly higher in the middle school campuses with

the highest one-third of minority students ($M = 10.74$, $SD = 8.50$) than in the campuses with the lowest one-third of minority students ($M = 6.74$, $SD = 6.92$). The effect size for this result was moderate (Cohen, 1988).

2005-2006 School Year

A MANOVA was conducted to ascertain whether (a) the percent of minority students, (b) the percent of economically disadvantaged students, and (c) the percent of at-risk students enrolled on campus differed as a function of beginning teacher percentages grouped into the lowest 1/3 and the highest 1/3. This analysis yielded a statistically significant result, $\Lambda = .96$, $p < .001$, $n^2 = .04$. Univariate follow-up F s revealed statistically significant differences for the percent of minority students, $F(1, 1002) = 43.14$, $p < .001$, $n^2 = .04$; for the percent of economically disadvantaged students on campus, $F(1, 1002) = 33.55$, $p < .001$, $n^2 = .03$; and for the percent of at-risk students on campus, $F(1, 1002) = 13.55$, $p < .001$, $n^2 = .01$. Effect sizes for these statistically significant results were small (Cohen, 1988).

Middle school campuses in the highest 1/3 of beginning teacher percentages had statistically higher percentages of minority students, higher percentages of economically disadvantaged students, and higher percentages of at-risk students than did middle school campuses with the lowest 1/3 of beginning teacher percentages. Table 3 contains the descriptive statistics for these three dependent variables.

Table 3

Descriptive Statistics for Variables of Interest by Beginning Teacher Groups for the 2005-2006

School Year

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Percent of Minority Students on Campus			
Lowest 1/3 of Beginning Teacher Percentages	502	49.50	31.83
Highest 1/3 of Beginning Teacher Percentages	502	62.20	29.42
Percent of Economically Disadvantaged Students			
Lowest 1/3 of Beginning Teacher Percentages	502	50.83	25.89
Highest 1/3 of Beginning Teacher Percentages	502	59.79	23.03
Percent of At-Risk Students			
Lowest 1/3 of Beginning Teacher Percentages	502	45.11	20.43
Highest 1/3 of Beginning Teacher Percentages	502	49.45	16.76

Next, following a frequency distribution for the percent of minority student enrollment, two groups were created: group one consisted of middle school campuses in the lowest one-third of minority student percentage and group two consisted of middle school campuses in the highest one-third of minority student percentage. Then an ANOVA was conducted to determine whether the percent of beginning teachers differed as a function of minority student enrollment. The ANOVA was statistically significant, $F(1, 996) = 32.75, p < .001, \eta^2 = .03$, and revealed that the percent of beginning teachers was statistically significantly higher in the middle school campuses with the highest one-third of minority students ($M = 9.51, SD = 7.62$) than in the campuses with the lowest one-third of minority students ($M = 6.86, SD = 6.99$). The effect size for this difference was small (Cohen, 1988).

2004-2005 School Year

A MANOVA was conducted to ascertain whether (a) the percent of minority students, (b) the percent of economically disadvantaged students, and (c) the percent of at-risk students enrolled on campus differed as a function of beginning teacher percentages grouped into the lowest 1/3 and the highest 1/3. This analysis yielded a statistically significant result, $\Lambda = .96, p < .001, n^2 = .05$. Univariate follow-up *F*s revealed statistically significant differences for the percent of minority students, $F(1, 1002) = 43.14, p < .001, n^2 = .04$; for the percent of economically disadvantaged students on campus, $F(1, 1002) = 33.55, p < .001, n^2 = .03$; and for the percent of at-risk students on campus, $F(1, 1002) = 13.55, p < .001, n^2 = .01$. Effect sizes for these statistically significant results were small (Cohen, 1988). Middle school campuses in the highest 1/3 of beginning teacher percentages had statistically higher percentages of minority students, higher percentages of economically disadvantaged students, and higher percentages of at-risk students than did middle school campuses with the lowest 1/3 of beginning teacher percentages. Table 4 contains the descriptive statistics for these three dependent variables.

Table 4

Descriptive Statistics for Variables of Interest by Beginning Teacher Groups for the 2004-2005 School Year

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Percent of Minority Students on Campus			
Lowest 1/3 of Beginning Teacher Percentages	502	49.50	31.83
Highest 1/3 of Beginning Teacher Percentages	502	62.20	29.42
Percent of Economically Disadvantaged Students			
Lowest 1/3 of Beginning Teacher Percentages	502	50.83	25.89

Highest 1/3 of Beginning Teacher Percentages	502	59.79	23.03
Percent of At-Risk Students			
Lowest 1/3 of Beginning Teacher Percentages	502	45.11	20.43
Highest 1/3 of Beginning Teacher Percentages	502	49.45	16.76

Next, following a frequency distribution for the percent of minority student enrollment, two groups were created: group one consisted of middle schools in the lowest one-third of minority student percentage and group two consisted of middle schools in the highest one-third of minority student percentage. Then an ANOVA was conducted to determine whether the percent of beginning teachers differed as a function of minority student enrollment. The ANOVA was statistically significant, $F(1, 996) = 32.75, p < .001, \eta^2 = .03$, and revealed that the percent of beginning teachers was statistically significantly higher in the middle school campuses with the highest one-third of minority students ($M = 9.51, SD = 7.62$) than in the campuses with the lowest one-third of minority students ($M = 6.86, SD = 6.99$).

2003-2004 School Year

A MANOVA was conducted to ascertain whether the (a) the percent of minority students and (b) the percent of economically disadvantaged students enrolled on campus differed as a function of beginning teacher percentages grouped into the lowest 1/3 and the highest 1/3. (The percentage of at-risk students enrolled on each middle school campus was not available in the AEIS database for this year.) This analysis yielded a statistically significant result, $\Lambda = .98, p < .001, \eta^2 = .02$. Univariate follow-up F s revealed statistically significant differences for the percent of minority students, $F(1, 988) = 20.55, p < .001, \eta^2 = .02$; and for the percent of economically disadvantaged students on campus, $F(1, 988) = 11.60, p = .001, \eta^2 = .01$. Effect

sizes for these statistically significant results were small (Cohen, 1988). Middle schools in the highest 1/3 of beginning teacher percentages had statistically higher percentages of minority students and higher percentages of economically disadvantaged students than did middle schools with the lowest 1/3 of beginning teacher percentages. Table 5 contains the descriptive statistics for these three dependent variables.

Table 5

Descriptive Statistics for Variables of Interest by Beginning Teacher Groups for the 2003-2004 School Year

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Percent of Minority Students on Campus			
Lowest 1/3 of Beginning Teacher Percentages	495	50.13	31.33
Highest 1/3 of Beginning Teacher Percentages	495	58.99	30.16
Percent of Economically Disadvantaged Students			
Lowest 1/3 of Beginning Teacher Percentages	495	50.29	25.24
Highest 1/3 of Beginning Teacher Percentages	495	55.68	24.56

Next, following a frequency distribution for the percent of minority student enrollment, two groups were created: group one consisted of middle schools in the lowest one-third of minority student percentage and group two consisted of middle schools in the highest one-third of minority student percentage. Then an ANOVA was conducted to determine whether the percent of beginning teachers differed as a function of minority student enrollment. The ANOVA was statistically significant, $F(1, 962) = 20.10, p < .001, \eta^2 = .02$, and revealed that the

percent of beginning teachers was statistically significantly higher in the middle school campuses with the highest one-third of minority students ($M = 7.48$, $SD = 6.79$) than in the campuses with the lowest one-third of minority students ($M = 5.65$, $SD = 5.94$).

Discussion

In this study, we examined characteristics of middle schools where beginning teachers were employed in the State of Texas for five years. Of the five multivariate analyses performed, all five procedures resulted in statistically significant differences. Effect sizes, or practical importance of these analyses, ranged from small to moderate (Cohen, 1988). What these overall analyses revealed was that differences were present in where beginning teachers at middle schools were employed for each of the last five school years.

Following the overall analyses, 19 univariate analyses were conducted and resulted with 18 analysis yielding statistically significant differences. Effect sizes for these analyses ranged from small to large (Cohen, 1988). The large effect sizes were consistently present for the percent of minority students enrolled on middle school campuses and beginning teacher percentages. That is, the middle school campuses with the highest percentages of beginning teachers had an average of 60% of minority student enrollment across the five years of data analyzed (see Tables 1-5). These percentages are substantially higher than the average of 50% minority student enrollment for the middle school campuses with the lowest percentages of beginning teachers. Similar results, though not as strong, were present for the enrollment of economically disadvantaged students. Middle schools that had higher percentages of economically disadvantaged students also had higher percentages of beginning teachers. Thus, our findings that beginning teachers were employed in schools with higher percentages of minority students and with higher percentages of economically disadvantaged students are

congruent with the existing literature (Education Trust, 2008; Jepsen & Rivkin, 2002; Peske & Haycock, 2006; U.S. Department of Education, National Center for Educational Statistics, 2000) and with the Martinez-Garcia and Slate (2009) study on beginning teachers at elementary school campuses in Texas.

Lest readers overgeneralize from these findings, several caveats are in order. First, this study represents a causal-comparative research design and, as such, does not yield cause-and-effect results. Second, a limited set of variables were examined that relate to the employment of beginning teachers at middle school campuses. Third, data from only one state were analyzed. Therefore, readers are urged to be cautious in the extent to which they make generalizations from this study. Researchers are encouraged to extend this study by investigating other schooling conditions and student characteristics related to beginning teachers. In particular, beginning teachers and their employment in other states or school districts at various school levels (i.e., elementary schools, middle schools, high schools) need to be addressed.

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