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Factors Associated with Staying On Track to Graduate: Evidence from the WCPSS 9th Grade Class of 2005-06

Authors: Kevin Gilleland and Brad McMillen

ABSTRACT

Given that graduating from high school on time prepared for the future is the ultimate outcome of the K-12 education process, then an understanding of the factors that distinguish students who do from students who do not becomes important. This study looked at data from the WCPSS 9th grade class of 2005-06 in an effort to document some of the factors that separated students who stayed on track to graduate from those who either got behind or dropped out. Results indicated that several demographic, program, and achievement factors were associated with staying on-time to graduate during high school. These results should help schools better identify students who might be at risk for not graduating on time.

BACKGROUND

Most people would agree that graduating high school on time, regardless of how long it might take, is better than not graduating at all. However, four-year graduation rates provide a means for measuring how well schools are preparing students for the future, suggesting that not graduating in four years with one's high school cohort might at some point carry an educational stigma similar to that of never graduating at all. While traditional efforts at reducing dropout rates have been concentrated at the high school level, presumably because the majority of dropout events occur in high school, questions have been raised about the relevant pre-high school experiences of dropouts and other not-on-time-to-graduate students.

In a 25-year review of the dropout literature, Rumberger and Lim (2008) of the California Dropout Research Project found that several educational factors are associated with dropping out. They include test scores, academic achievement prior to high school, and non-promotional school changes. Early academic performance from as early as pre-school or early elementary school through high school was also cited as one of the most consistent indicators of graduation. In addition, male, minority (except for Asian), and Limited English Proficient (LEP) students appear more likely to drop out than their fellow students.

However, Silver, Saunders, and Zarate (2008) tracked a cohort from the 6th grade through its expected graduation in the spring of 2005 and found that academic experiences, as compared to demographic characteristics, explained six times more of the difference in graduation rates. In fact, they found that higher school mobility had such a strong association with not graduating on time that only about a third of the 8th graders with this factor did graduate on time.

These two studies are emblematic of a larger body of research which suggests that experiences *prior* to entering high school – sometimes many years prior – are the most critical factors behind the high school dropout phenomenon. Accordingly, the purpose of this analysis is to characterize those pre-high school experiences for a group of current high school students in WCPSS and to determine how those factors might relate to whether students are likely to graduate on time.

METHODS

According to the manner in which the state of North Carolina reports graduation rates for high schools, the first time a student enters 9th grade, the “clock” for an on-time graduation four years later starts ticking for that student. If that student earns a diploma in four years or less, then the school that graduates the student gets the credit in their school’s graduation rate. If a student drops out or is retained in such a way that he/she is unable to graduate in four years, then that student counts against the graduation rate of the school the student was in when things went awry. There are many complex, detailed exceptions, but these general rules cover most cases.

Using this logic, a cohort of 9,214 WCPSS students was identified for this analysis, each of whom was a first-time 9th grader in 2005-06. Therefore, each would have been expected to be entering their final year of high school in August 2008.

Demographic and academic test histories were collected on these 9,214 students, and each was identified as being in one of three groups based on their status in August 2008, which is when most of them should have been starting their final year of high school. The three groups were:

- Students on-time to graduate (7,004 students – 76%),
- Students not on-time to graduate (1,183 students – 13%), and
- Dropouts (1,027 students – 11%)

For the purpose of these analyses, “On-Time” was defined as a student who was classified as a 12th grader in August 2008. Presumably, these students were on schedule to graduate by the end of the 2008-09 school year. “Not On Time” was defined as a student who was still enrolled in WCPSS in August 2008 but not as a 12th grader, presumably because of a shortage of credits and/or appropriate English classes. “Dropouts” were students who had already dropped out of school sometime between the 2005-06 school year and August 2008.

It is important to note that students in this cohort may not necessarily have had continuous membership in WCPSS between 2005-06 and August 2008. For example, any number of entries and withdrawals may have occurred in the course of these students’ educational histories, but as long as they first entered 9th grade during the 2005-06 school year, they are considered members of this cohort.

The remainder of this report examines selected demographic characteristics, mobility experiences, and achievement patterns for these students, and the extent to which those factors are different for students in the three groups defined above.

RESULTS

DEMOGRAPHICS

Not surprisingly, when comparing the three groups of students that comprise the cohort there are cases where some groups are either over or under-represented based on ethnicity and gender. While only 22.4% of the On-Time group is Black, 44.7% and 51% of the Dropouts and Not-On-Time groups, respectively, are Black. There are four times as many Hispanic Dropouts and twice as many Black Dropouts than there are Hispanic On-Timers and Black On-Timers, respectively. Conversely, among White students, the percentages of Dropouts and Not-On-Timers each constitute less than half of the percentage of White students in the On-Time group (Figure 1). Males and females are also unevenly distributed between the Dropout and Not-On-Time groups, with males constituting up to fifty percent more of those groups as compared to females. The On-Time group is roughly evenly distributed between the genders (Figure 2).

Figure 1
Percentages of Students in Each Cohort Group by Ethnicity

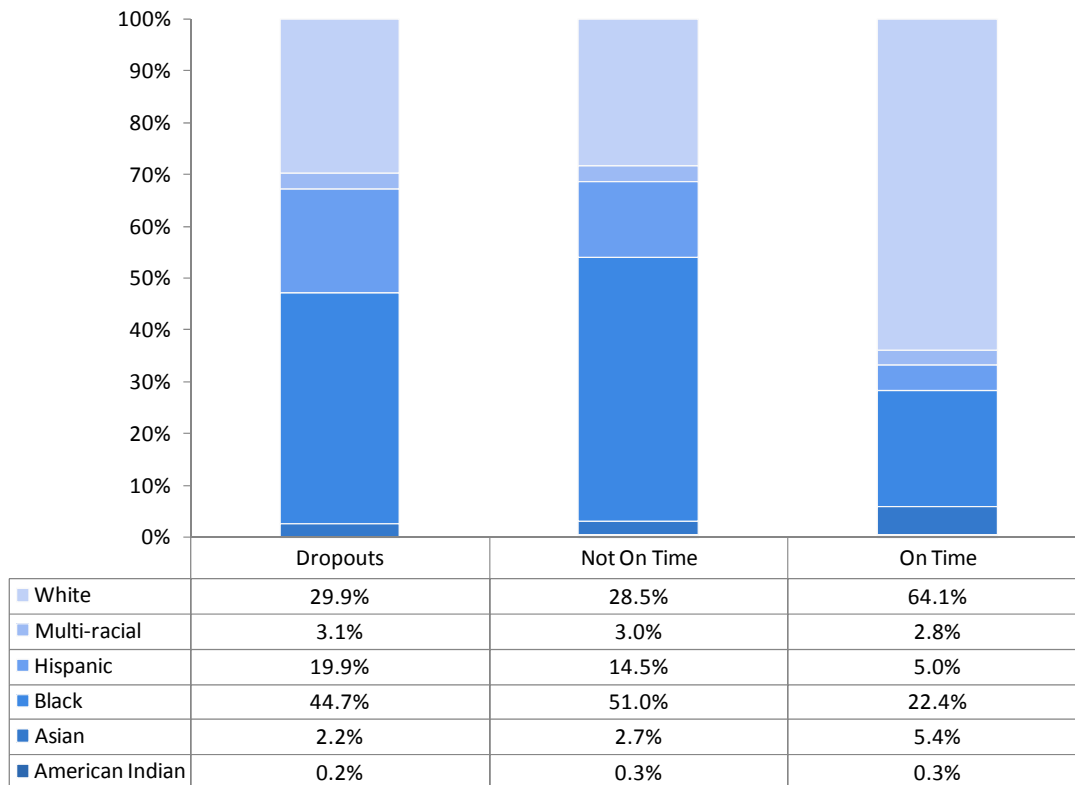
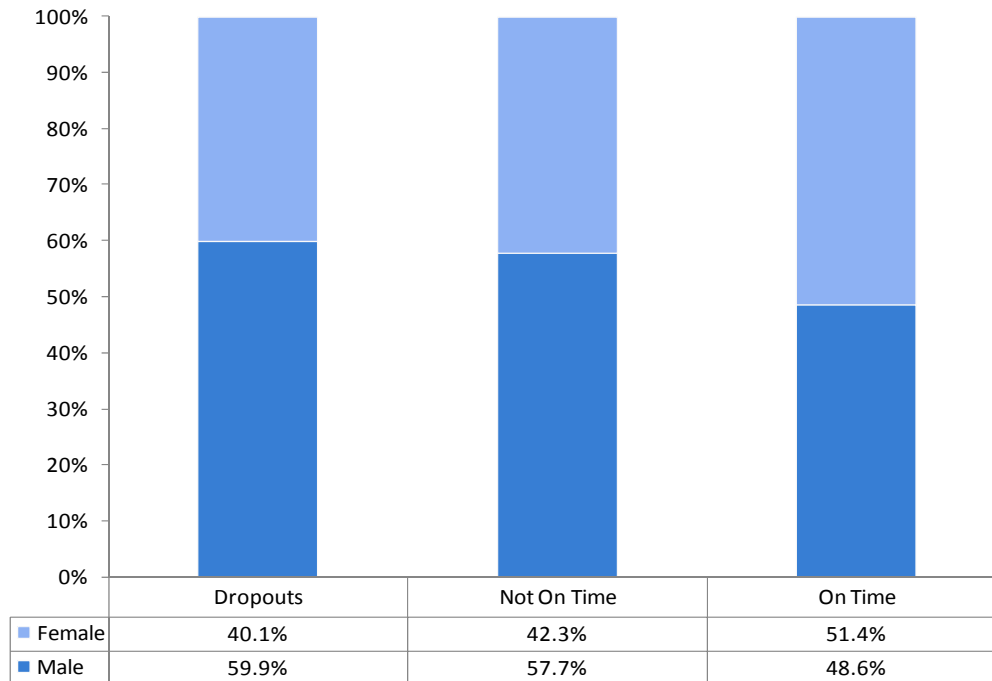
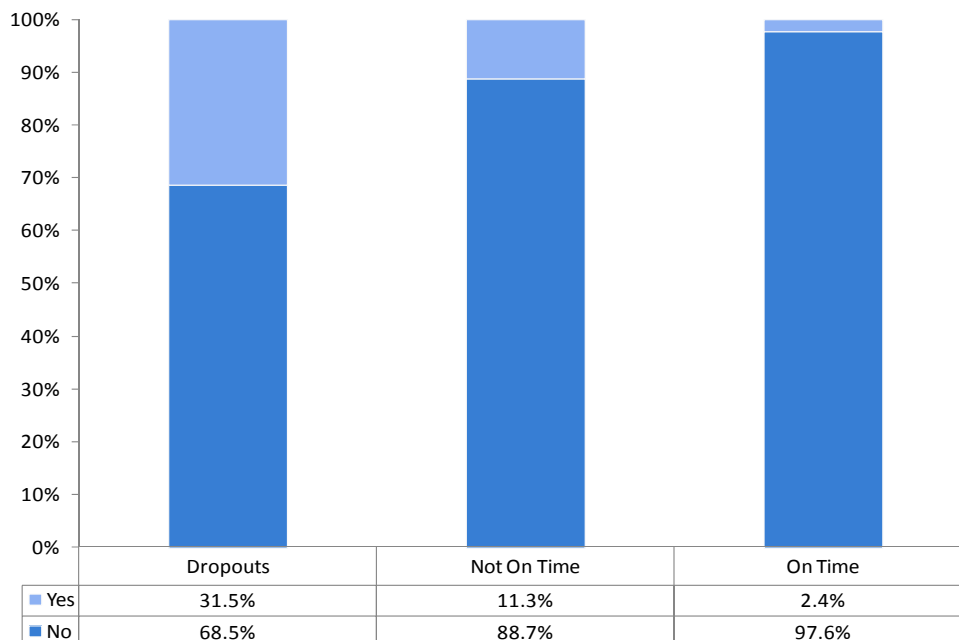


Figure 2
Percentages of Students in Each Cohort Group by Gender



Students who were over-age for their grade upon entering high school (defined as turning 16 prior to January 1 of the 9th grade year) were also over-represented in the Not-On-Time and Dropout groups. While only 2.4% of the On-Time group had turned 16 by the middle of their 9th grade year, proportionally 13 times as many (31.5%) had done so in the Dropout group, and five times as many (11.3%) in the Not-On-Time group (Figure 3).

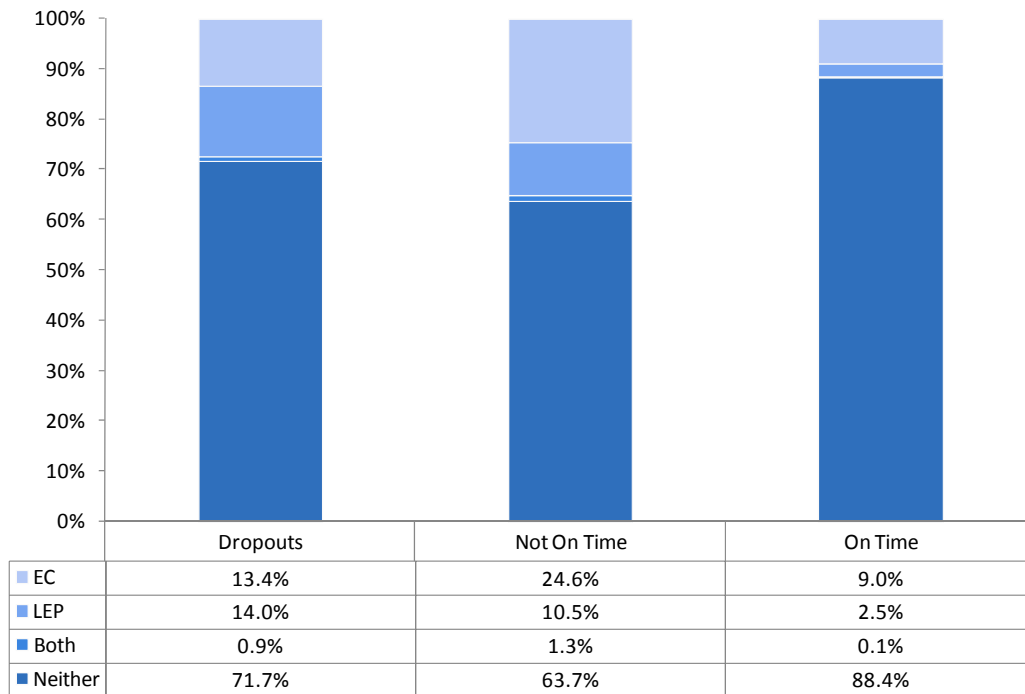
Figure 3
Percentages of Overage Students by Group



Differences are also evident based on selected program characteristics. Nearly all of the cohort is not Limited English Proficient (LEP). However, of the students who are LEP, almost six times more are in the Dropout group than in the On-Time group (Figure 4).

While Special Education students (referred to in the chart as EC) represent about 13% of the Dropout group—which is very close to their representation in the district’s overall student population—they constitute about 25% of the Not-On-Time group and only 9% of the On-Time group. This difference may be due to programmatic efforts to keep those students in school, whether on-time or not, instead of dropping out. In fact, many EC students are purposefully on a five-year plan to graduate, which, at best, will define them as a Not-On-Time graduate according to the state’s current metric.

Figure 4
Percentages of Students in Each Cohort Group by Program Status



Note: Percentages may not add to 100% due to rounding.

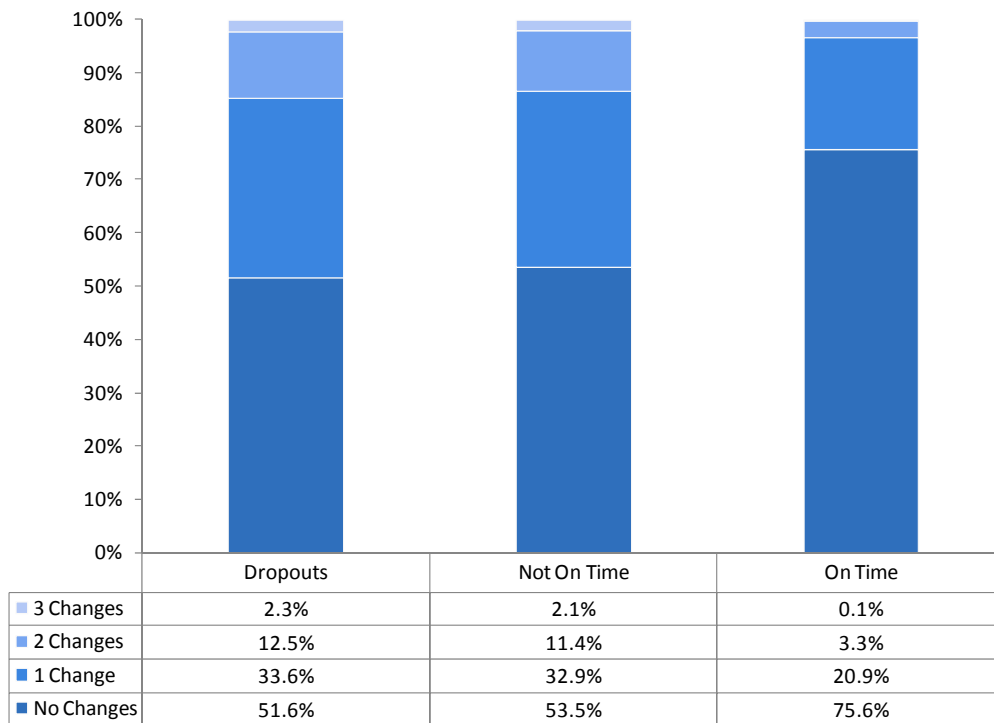
MOBILITY

In addition to student demographic and program characteristics, another possible factor that could relate to on-time graduation is the lack of stable educational opportunities. Shown below is the number of elementary and middle school changes that each group recorded. For purposes of this analysis, a change is defined as leaving one school to enter another except for the crossing of a natural grade span (e.g., leaving an elementary school after 5th grade to enroll as a 6th grader in a middle school, etc.). One change means the student attended at least two schools; two changes equates to a student attending three different schools, etc. Elementary school changes were only tracked across grades 3-5.

Due to a lack of data covering school attendance outside of WCPSS, any change either to or from a WCPSS school to or from a school outside the district is counted as one change, even though it is possible that a student may have changed schools multiple times while outside WCPSS. Note also that the database used for this analysis captured changes from one EOG or EOC testing event to another; therefore, all of the school changes that may have occurred within a school year may not have been captured. For example, if a student was in school A in May of 2001 and school B in May 2002, that would count as a change. However, if the student went from A to B and then back to A all within the same school year, that type of mobility may not have registered in this database. Therefore, these numbers represent a conservative estimate of mobility.

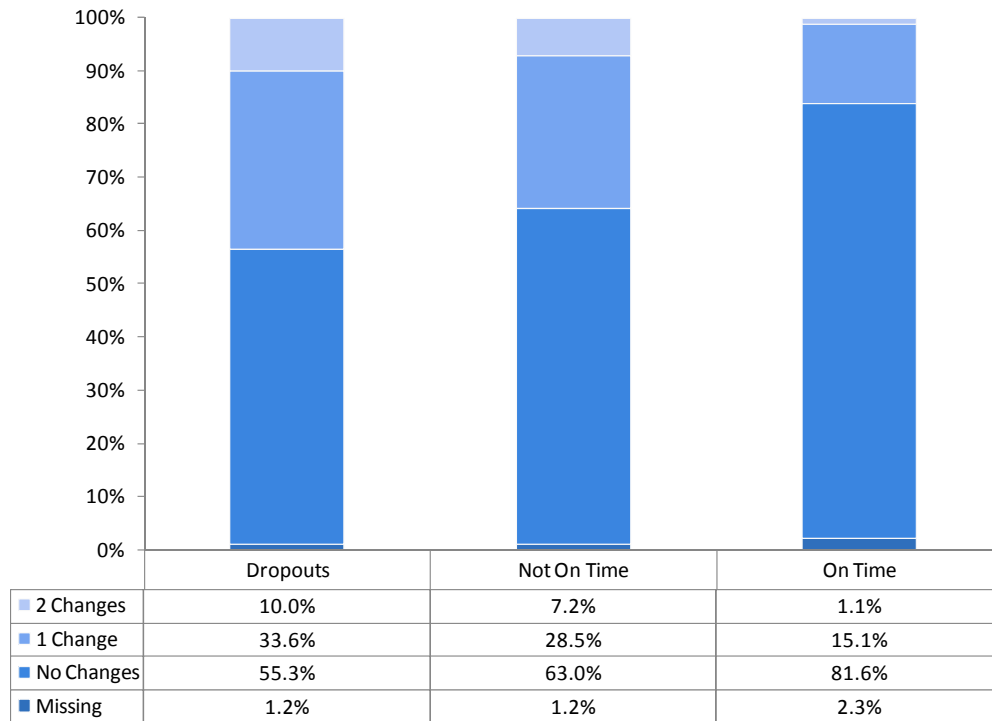
Almost half of the Dropout group experienced at least one elementary school change, while less than one-fourth of the On-Time group did so (Figure 5). The same basic pattern was also evident at the middle school level, where just over 40% of Dropouts experienced a middle school change, as compared to less than 19% of the On-Timers (Figure 6).

Figure 5
Percentages Experiencing Elementary School Changes by Group



Note: The total Ns for the “Number of Elementary Changes” table represent students in the cohort who were being served in WCPSS in the fall of 3rd grade and, if they remained in WCPSS, 4th and 5th grades.

Figure 6
Percentages Experiencing Middle School Changes by Group



Note: “Missing” indicates that a student did not attend WCPSS during his/her middle school years.

ACHIEVEMENT¹

Early academic signs that a student may be at risk of not graduating on time are also found in the comparative proportions of EOG tests on which a student scores in Achievement Level I or II, which according to state standards, indicates that they are not performing academically on grade level. Proportionally, almost twice as many eventual Dropouts and Not-On-Timers scored below grade level as early as 3rd grade (either on the fall pretest or in the spring) compared to students who were on time to graduate (Table 1). Fewer than half of the Not-On-Timers and Dropouts passed all of their EOGs taken; whereas nearly 64% of the On-Timers passed every EOG that they took in elementary and middle school. If we consider the fact that 930 (or about 13%) of the “On-Time” students in the cohort entered WCPSS for the first time during their high school years, and therefore had no EOG scores on record from elementary or middle school, this 64% is probably a conservative estimate of the percentage of On-Timers who get to high school without failing a major test prior to that time, meaning that the differences between the groups might be even larger than presented here.

¹ This section reports selected longitudinal achievement results from grades 3-8 for the entire cohort (9,214) despite the fact that not all students in the cohort were in WCPSS continuously during that period. Additional analyses were performed using only data for cohort students who were continuously enrolled in WCPSS from Grade 3 through Grade 8, and the substance and pattern of results was not meaningfully different. Therefore, the results based on all students are presented here.

Table 1
First Time EOG Below Grade Level by Group

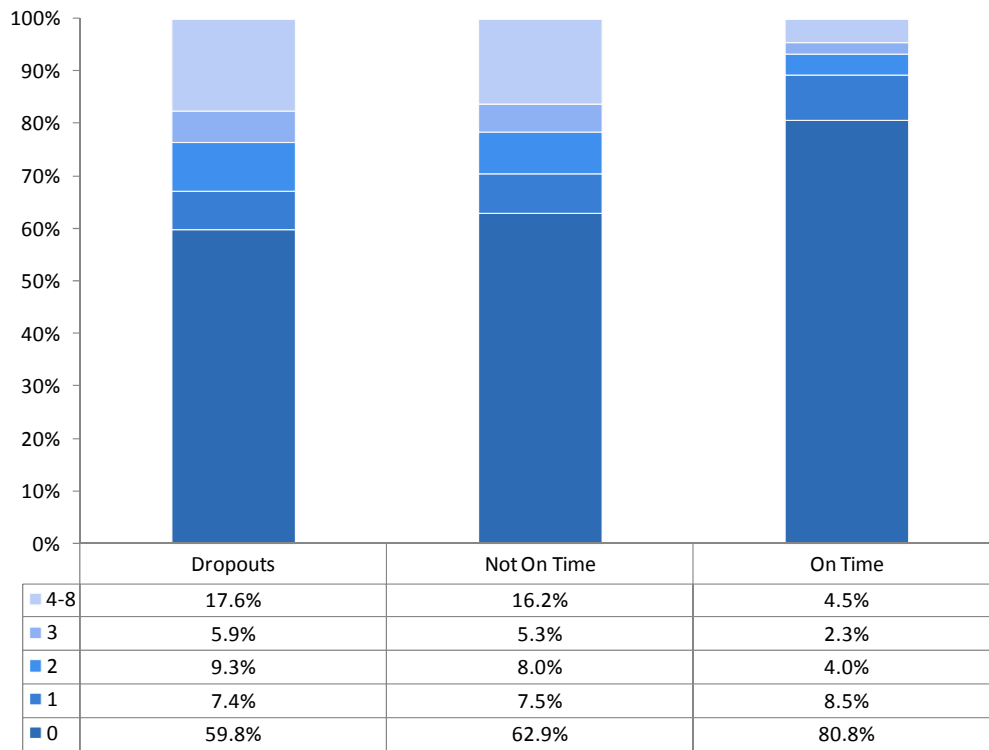
2005-06 Graduation Cohort																			Total N
	No EOGs Taken		No EOGs Below Grade Level		3 rd Grade Pre		3 rd Grade		4 th Grade		5 th Grade		6 th Grade		7 th Grade		8 th Grade		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Group																			
Dropouts	.	0.0	450	43.8	268	26.1	90	8.8	37	3.6	18	1.8	54	5.3	51	5.0	59	5.7	1027
Not On Time	.	0.0	570	48.2	300	25.4	75	6.3	29	2.5	35	3.0	44	3.7	50	4.2	80	6.8	1183
On Time	930	13.3	4466	63.8	916	13.1	286	4.1	92	1.3	51	0.7	95	1.4	78	1.1	90	1.3	7004
Total	930	10.1	5486	59.5	1484	16.1	451	4.9	158	1.7	104	1.1	193	2.1	179	1.9	229	2.5	9214

Note: “No EOGs Taken” indicates that the student was not in WCPSS prior to 9th grade. These are students who entered the graduation cohort “laterally” (e.g., entered as 10th graders on-track to graduate during 2006-07, etc.).

In addition to examining the first time each student failed to score proficient on an EOG test, this analysis also examined the total number of times a student failed to score proficient during each grade span. Elementary school results indicated that roughly the same proportions of Dropouts, Not-On-Timers, and On-Timers had one EOG failure during grades 3-5. However, Dropouts and Not-On-Timers were more likely than On-Timers to experience additional failures beyond the first one (Figure 7). Once the number of failures reached four or more, the proportion of students in the Dropout and Not-On-Time groups was four times larger than the On-Time group.

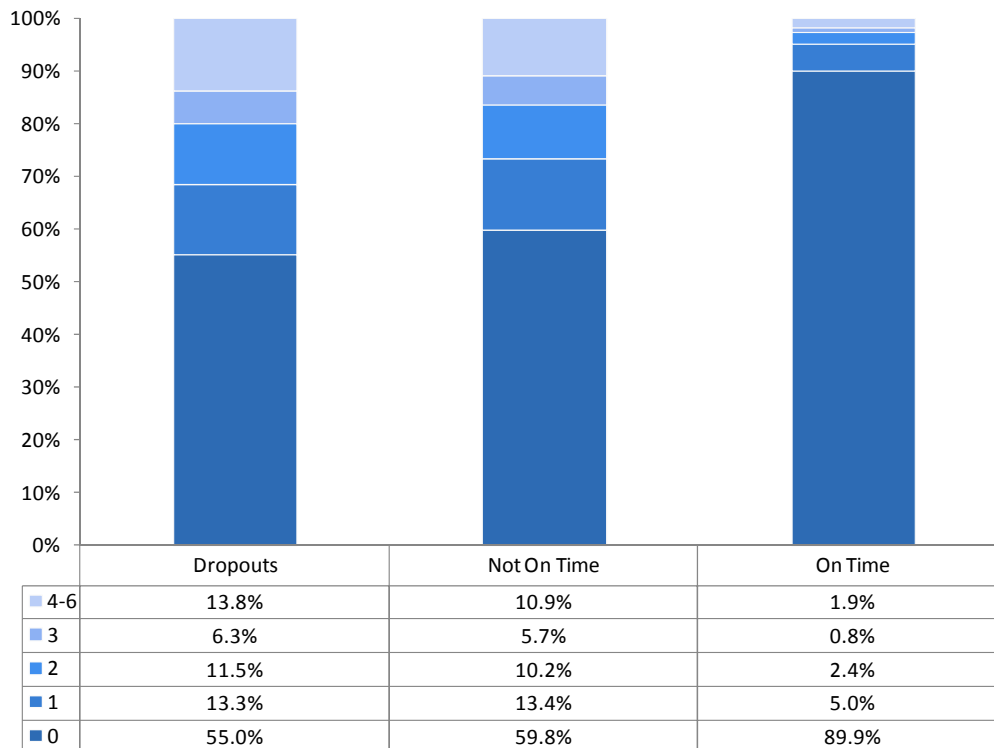
At the middle school level, On-Timers had proportionally far fewer middle school fails (Figure 8), establishing an even bigger comparative gap than existed in elementary school. Only one of ten on-time, rising seniors had at least one EOG failure in middle school; whereas, more than four in ten of the Dropouts and other Not-On-Timers had one or more fails.

Figure 7
Percentages Scoring Below Grade Level on an Elementary School EOG by Group



Note: Students generally had the opportunity to take up to eight EOGs, including four in the 3rd grade.

Figure 8
Percentages Scoring Below Grade Level on a Middle School EOG by Group



Note: Students generally had the opportunity to take up to six middle school EOGs.

SUMMARY

Past performance does not necessarily predict future results. However, students who were not on time to graduate with their 2005-06 9th grade cohort because they dropped out showed earlier signs of being at-risk than did those who were on time to graduate. Dropouts experienced proportionally more failures on EOG tests, and failed for the first time at an earlier point in their academic career. They changed elementary and middle schools proportionally more often than other students. They were also more likely to be overage by the time they got to 9th grade compared to others in their cohort, suggesting that they were more likely to have been retained at some point prior to 9th grade. More Dropouts were minority, and more were male. Rates of LEP and EC also ran higher for Dropouts, though the overall numbers for these categories were small.

These same relationships held in general when looking at the students in the Not-On-Time group as well – who were still in school but had fallen behind their peers during high school – although in some cases the differences between Not-On-Timers and On-Time students were somewhat less pronounced. It must be acknowledged that these Not-On-Time students are still in school, and many may even catch up with their peers and end up as on-time graduates in June 2009. However, the fact remains that they did not progress as expected during their high school years, for whatever reason, which puts them at risk for not meeting graduation requirements. The important thing to note is that many factors differentiate on-time graduates from their peers, and that those factors in some cases are distinguishable well before students enter high school.

The current study, because it is retrospective in nature, provides no experimental evidence that any of these factors actually cause students to get off-track. In lieu of prima facie explanations, other unmeasured factors may be involved which represent the actual drivers behind academic failure. The value added by this analysis is to highlight symptoms that educators can view as warning signs indicating a student may be at risk for not remaining on-time to graduate, particularly by means of dropping out.

While failing early EOGs more often, collecting higher numbers of overall failures, experiencing more school changes, and being overage characterize students who have not kept pace with their graduation cohort, these situations are the exception rather than the rule in WCPSS, where four-year graduation rates are currently hovering around 80% (Wake County Public Schools, 2008a). In addition, there are many students with experiences and profiles similar to that of students who fail to graduate on time who nonetheless have kept pace. An investigation of the reasons behind such apparent resiliency (Wake County Public Schools, 2008b) may lead to a greater understanding of the options available to school leaders as they try to “correct course” for the less timely within any graduation cohort.

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