

The Optimal Reference Guide:

Graduation Rates: Failing Schools or Failing Formulas?

Extraordinary insight™ into today's education information topics

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ESP Solutions Group

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Introduction

Everyone knows the importance of graduating from high school. According to Lynn Olson in Diploma Counts 2006, “Without that passport, young people face bleak prospects, economically and socially.” Numerous reports have shown the reduced earning power for students who do not complete high school.

As a nation, we expect the public schools to ensure that all students complete a rigorous education, which will leave them prepared to attend college and compete for jobs in the U.S. economy. As a result, we have turned to graduation rates as an indicator of the success of the schools in doing just that—preparing students for their futures. But we have lost sight of the changing nature of school and the reality of trying to track individual students as they pursue the high school diploma.

This paper provides a discussion of existing formulas being used to compute graduation rates. The discussion of rates is really just the background for the real purpose of this paper, which is to provide guidance on how to accurately track and report on individual students such that the graduation rate is more accurate and has more meaning.



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Graduation Rates and Data Issues

The *No Child Left Behind Act (NCLB)*, enacted by Congress in 2001, requires states to report graduation rates for their high schools as a part of the accountability measures. States are given the right to determine how they will compute those rates. As a result, there is little consistency across states, and comparisons are futile. Many organizations have entered into the discussion about what should be the appropriate formula for computing graduation rates. The Secretary has indicated that she will impose a single definition on all states beginning later this year.

This discussion about graduation rates is not new. More than twenty years ago, there were few consistent data available for comparing schools in the various states. That did not keep people from trying to calculate rates. In the "Wall Chart" produced by the U.S. Department of Education in 1986, a graduation rate adjusted for migration and unclassified students was calculated for each state. According to the footnotes, "The adjusted graduation rate was calculated by dividing the number of public high school graduates by the public ninth grade enrollment four years earlier. Ninth grade enrollments include a prorated portion of the secondary school students who were unclassified by grade. Graduation rates were also corrected for interstate population migration. Information on the number of persons of graduation age receiving GEDs is not currently available." The uproar surrounding these rates was enormous. Among the issues raised were:

- The adjustment for migration was not published. States with a large influx of students were curious about how this was affecting them.
- Unclassified students are generally special education students. Including one twelfth of them in the rate makes an assumption that they will be able to complete high school with their cohort, when most of them would remain in school and receive services until they are around 21.
- States had different requirements for graduation. Those that were raising the requirements could be expected to have fewer students completing on time.
- Some states noticed a "bubble" in the ninth grade counts made up of students who had not passed enough classes to be classified as sophomores. This would artificially inflate the ninth grade cohort.
- GED counts were not readily available, particularly for school-aged people. In fact, a person was supposed to have dropped out of high school and reached a particular age before being allowed to take the GED. That, however, was not consistent from state to state.
- The public assumed that the Dropout Rate was the inverse of the Graduation Rate. This was an inaccurate assumption as there were many issues entering into accurate counting that were not taken into consideration in the formula, namely transfers in and out and students who were continuing on after four years in high school.

 **ESP Insight**
Currently, there is little consistency across states on how they compute graduation rates, thus comparisons are futile.

Needless to say, much work was still needed if graduation rates would be useful.

In 1990, the National Education Goals Panel selected a 90% High School Completion Rate as its Goal 2. The Panel struggled with finding the appropriate source for the data, the types of credentials to include, and how to accurately report on dropouts who returned to high school. As an advisor to the Goal 2 Committee, I told them that they would only ever have estimates of graduation rates until we could accurately track what happens to individual students. Because this was not possible, they elected to look to Census data for graduation rates, so that private school students and other completers could be included. The high school completion rate was around 85%, and did not give an indication of on-time graduation nor what type of credential was received, and did not provide state-by-state rates.

About this time, many states were developing accountability systems of their own. Some states reported the percentage of twelfth graders who graduated from high school. Obviously this was an inflated statistic. Others tried to produce an on-time graduation rate. At that time, however, only two states had individual student records, so tracking individual students was impossible. Districts were leery of producing accurate dropout numbers, as they would be chastised. On the other hand, some states were providing grants to help districts with many dropouts. So districts had to decide which was more important.

The National Center for Education Statistics (NCES) has been very involved in the discussions about and computation of graduation and dropout rates. They collect counts of graduates used in some of the published rates. They convened advisory groups, funded some work by the Council of Chief State School Officers (CCSSO), and did statistical analyses to see what formulas would be accurate yet fair to the states. As part of this effort, states were asked to provide graduation and dropout data according to standard definitions. This work has continued and now almost all of the states report graduation and dropout data according to "standard definitions." The result of much consideration and testing was the development of several rates.


- A **leaver rate** takes into consideration all persons who left school either as completers (high school diploma recipients, other high school completers, or dropouts) after four years of high school. (GED completers were originally included, but are no longer for reasons to be discussed later in this document.) Transfers in and out were taken care of by this methodology, as well as students who died or who were continuing on with their education. Several types of rates could be computed.
- The **status completion rate** indicates the percentage of individuals in a given age range who are not in high school and who have earned a high school diploma or equivalency credential, irrespective of when the credential was earned. The rate focuses on an overall age group as opposed to individuals in the public school system, so it can be used to study general population issues.

 **ESP Insight**
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- The **averaged freshman graduation rate** estimates the proportion of public high school freshmen who graduate with a regular diploma four years after starting ninth grade. The rate uses aggregate student enrollment data to estimate the size of an incoming freshman class and aggregate counts of the number of diplomas awarded four years later. The incoming freshman class size is estimated by summing the enrollment in eighth grade for one year, ninth grade for the next year, and tenth grade for the year after and then dividing by three. The averaging is intended to account for higher grade retentions in the ninth grade. The rate focuses on public high school students as opposed to all high school students or the general population and is designed to provide an estimate of on-time graduation from high school. Thus, it provides a measure of the extent to which public high schools are graduating students within the expected period of four years. (NCES, 2007)

Two more rates are gathering attention at this time. One rate is used by *Education Week* in their annual report called, *Diplomas Count*. The rate used in this publication is the Cumulative Promotion Index (CPI). “By multiplying grade-specific promotion ratios together, the CPI estimates the likelihood that a ninth grader will complete high school on time with a regular diploma, given the schooling conditions prevailing during a particular school year.” The data used come from the NCES Common Core of Data, an annual census of public schools and school districts. The CPI does not follow actual students. It is generated using the data from two adjacent school years. Only recipients of standard high school diplomas are considered graduates. Since states vary on what they call standard high school diplomas (e.g., what type of diploma is received by special education completers), these data cannot be considered truly accurate—only estimates.


Another rate has been proposed by the National Governor’s Association, and all 50 state governors have signed a compact to promote collection and reporting of the data. This is the rate proposed by the Secretary for NCLB reporting. The NGA rate is a four-year adjusted cohort graduation rate. The rate is calculated by “dividing the number of on-time graduates in a given year by the number of first time entering ninth graders four years earlier. Graduates are those receiving a high school diploma. The denominator can be adjusted for transfers in and out of the system, and data systems will ideally track individual students with a longitudinal student unit record data system. Special education students and recent immigrants with limited English proficiency can be assigned to different cohorts to allow them more time to graduate.” This rate is clearly the closest to the ideal of tracking individual students.

 **ESP Insight**
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According to *Diploma Counts*, 32 states are using a leaver rate for NCLB reporting on the Class of 2008. Seventeen states are using a cohort rate, one state uses a composite rate (proportion of students estimated to remain in high school until grade 12 and receive a diploma), and the other state uses a persistence rate (percent of students who remain in school from grade 9 through grade 12, calculated by multiplying (1) the rate of persistence between grades 9 and 12; and (2) the percent of completers who receive a diploma rather than another credential).

Dropout Rates and Data Issues

Dropout rates have received similar attention, much of it within the context of the relationship between graduation and dropout rates. The problem of accuracy in accounting for dropouts, mentioned earlier, cannot be overlooked. While guidance from school districts indicates that students who leave and whose whereabouts are unknown should be counted as dropouts, schools often relied on “friends” of the dropout who might say that the student had moved out of town or transferred to another school. Because data systems were not linked across districts in most instances, and certainly not within states, there was no way to check to see if this was true.

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In 1982, the springboard study entitled, *Mother got tired of taking care of my baby*, (Doss, 1983) was published. This evaluation of dropout rates and causes led to further study of the issues related to identifying dropouts and counting them. A subsequent study done by Glynn D. Ligon, Ph.D. and his colleagues at the Austin Independent School District (AISD) compared four types of dropout formulas (with variations) received from districts all over the U.S. Data from AISD were crunched using the various formulas, and the dropout rate was found to range from 10.1% to 50.6%. This study raised awareness of the games that can be played with dropout rates.

Reporting on dropouts 20 years ago was often done by grade level, and averaged to give an “average dropout rate” for a school. In later years, with the focus shifting to what happens to entering ninth graders four years later, a cumulative calculation was proposed.

NCES (2007) clarified many of the issues related to dropout rates by describing three types of rates.

- The **event dropout rate** estimates the percentage of both private and public high school students who left high school between the beginning of one school year and the beginning of the next without earning a high school diploma or its equivalent (e.g., a GED). It can be used to track annual changes in the experiences of students in the U.S. school system.
- The **status** dropout rate reports the percentage of individuals in a given age range who are not in school and have not earned a high school diploma or equivalency credential, irrespective of when they dropped out. The rate focuses on an overall age group as opposed to individuals in the public school system, so it can be used to study general population issues. The Census provides the data.
- The **cohort rate** provides a longitudinal measure of students leaving school without completing high school. It measures the proportion of students who were enrolled in a given school during the ninth grade who did not receive a diploma after four years. It is more difficult to compute for a statistical agency which cannot follow individual students.

None of these rates can be inverted to get a graduation rate, something the public seems to desire.


The problems with dropout rates revert back to the problems with identifying who is a dropout. Hearsay is not enough reason to classify a leaver as a "transfer." How should we handle students who are incarcerated? The list goes on and on. In the next section, we will discuss the types of leavers and what must be done to ensure standard recordkeeping is done at the school level so that the data will be reliable and accurate.

Collecting Accurate Data

The growth of longitudinal data systems has allowed some states to identify mobile students and determine if they are continuing their educations in districts other than where they started. Texas showed how they could “recover” dropouts by searching their database for students identified as dropouts in one district and finding them in another. But that just raised a question about whether the student should still be considered a dropout of the first district since they left without officially declaring they were leaving.

Effective implementation of dropout and graduation counting at the local level requires policies and procedures geared toward making the correct decisions about how to determine a student’s status. This entails clear specification of status/leaver codes, determination of when a student’s status is specified, and procedures needed to act on a student’s status.

In 2006, the National Forum on Education Statistics published a document called, *Accounting for Every Student: A Taxonomy for Student Exit Codes*. (The National Forum on Education Statistics is made up of data-focused representatives of federal, state, and local education agencies.) This excellent document provides guidance on how to classify the status of every student no matter what grade level. It also describes the issues associated with classifying special education leavers. However, it leaves some issues open to decision making by the state and local education agencies.

 **ESP Insight**
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There are six categories of “exit codes” described. However, there are really only five exit codes because the first code category describes a student who is continuing with his/her education in the school/district. The six code categories are further subdivided for more accurate and useful information. The six general categories are:

1. **Still enrolled in the district** – Students are receiving education services and funding in the district; their record has an entry code, but no exit codes. The responsibility for education services to the student remains with the district of accounting.
2. **Transferred** – Students are known to be receiving services. This covers students transferring to other public or private schools in the same state, another state, or another country. This includes students who transfer to home schooling if it meets the requirements of the state.
3. **Dropped out** – This includes students who leave school whether they want to or not and are not expected to return. It also includes students whose status is unknown. And it includes students who have left “regular” education and may be participating in non-diploma awarding education programs.
4. **Completed** – These students have completed a program and graduated or received a certificate of attendance if the regular program is not completed. This category must be subdivided since it includes GED completers,

vocational program completers and those who have completed a program but didn't meet all the requirements for graduation.

5. **Not enrolled, eligible to return** – These students have left school for disciplinary or medical reasons, to attend a foreign exchange program, or to attend an early college admissions program.
6. **Exited (neither completed nor dropped out)** – This classification covers students who have left the system because they are physically unable to continue their education or because they have previously completed a diploma or certificate.

Identifying students correctly is not always easy. These categories leave a lot of wiggle room in how graduates and dropouts are counted. As a result, I have produced a slightly different listing of desired codes. The following list has what I believe to be the most important codes to maintain in order to have the level of detail needed to calculate graduation and dropout rates. I have renumbered them just to make formula discussions easier later in this document. (Anyone wishing to use the complete set of sub-codes is referred to the Forum Document at <http://nces.ed.gov/pubs2006/2006804.pdf>.) I have included some categories in places other than recommended by the Forum in response to the rates expected to be produced. In addition to the codes and descriptions, I have provided examples and potential examples (in italics) for each category.

Forum Code(s)	New Code	Student Status Code	Examples <i>Potential Examples</i>
Still enrolled			
1A	I	Still enrolled in the same school	<ul style="list-style-type: none"> • Students who continue taking courses beyond grade 12 – those who still need credits and are staying in school • Students whose IEP allows them to continue schooling until age 21 • <i>Students who attend sporadically (until identified as dropouts)</i>
1B, 1C	II	Still enrolled in the district or are receiving services funded by the district	<ul style="list-style-type: none"> • Students completing a self-paced program • <i>Students taking coursework online (unless the district does not recognize the program)</i>

Forum Code(s)	New Code	Student Status Code	Examples <i>Potential Examples</i>
5C	III	Enrolled in a foreign exchange program, expected to return	<ul style="list-style-type: none"> Students who do their senior year abroad
5D	IV	Enrolled in an early admission college program, expected to graduate with class	<ul style="list-style-type: none"> Students who leave school early to attend a postsecondary institution
Transfers			
2	V	Transferred to another district, non-public school, or accepted home schooling	<ul style="list-style-type: none"> Students who transfer to home schooling Students who transfer to accredited private schools <i>Students who move back and forth from foreign countries, at least if proof is received that they are continuing their education</i> <i>Students who transfer to uncertified charter schools</i> <i>Students who transfer to unaccredited private schools</i> <i>Students who go to prison and are receiving education services in prison</i>
Dropouts			
3A, 3B, 3C, 3E, 5A	VI	Dropped out, were removed from the system, or status unknown	<ul style="list-style-type: none"> Students who leave school to have a baby, intending to return Students who leave school to take care of a sick relative Students who leave to take a job to support their families Students who take a sabbatical
3D	VII	Enrolled in education program not leading toward a diploma or the military	<ul style="list-style-type: none"> Students who enter the military with a graduation plan

Forum Code(s)	New Code	Student Status Code	Examples <i>Potential Examples</i>
4B	VIII	Completed most but not all of the requirements for a diploma or certificate	<ul style="list-style-type: none"> Students who stay in school for the full 12 years, but do not meet all requirements
Completers			
4A	IX	High School Diploma recipient and those who complete all requirements for the diploma	<ul style="list-style-type: none"> Students who graduate early—finish all requirements but don't stay around for the ceremony Students who finish requirements but are expelled from school prior to graduation day for a school prank Students who earn an alternative diploma Students who complete a vocational program that meet the requirements for a diploma
4C	X	Certificate of Achievement or Attendance for non-diploma programs recipient	<ul style="list-style-type: none"> Students who meet all of the requirements of their IEPs
4D	XI	Vocational certificate, non-diploma recipient	<ul style="list-style-type: none"> Students who complete a vocational program that does not meet the requirements for a diploma
4E	XII	GED or other equivalency recipient	<ul style="list-style-type: none"> Students who earn a GED
Exiters—Neither Completed nor Dropped Out			
5B, 6A	XIII	Students who died or are receiving medical services but no schooling	<ul style="list-style-type: none"> Students who die
6B	XIV	Students who completed a credential but returned and then left again	<ul style="list-style-type: none"> Students who received a Certificate of Attendance, come back to work on a diploma, but later drop out

The potential examples in italics are those which are not easy to place into a single category; where they are placed depends on policies established by the district or state. Each of these potential examples is discussed in more detail here.

- *Students who attend school sporadically* are dropouts waiting to happen. Some states have identified a set number of absences after which a student is identified as a dropout. Other states look for a certain number of absences in a row as an indicator that the student is a dropout. Schools should monitor chronic absentees and attempt to intervene to promote school attendance. If a student is below the required attendance age, then they are often called “chronic truants.” The assumption, then, is that they are still enrolled, at least until they reach the threshold that identifies them as dropouts. We sometimes call students “stop-outs” if they attend school for awhile during a school year, then drop out, then return later in the year or the following year. These students should be counted as dropouts when the first cut is made, but not counted as dropouts every time they leave. One always retains hope that they will decide to finish.
- *Students taking coursework online* are presumably still enrolled in the district which will accept their credits earned. However, the district may not recognize the program as legitimate. If a district does not accept online course credits, then the student may be considered a;
 - transfer, if the courses lead to receipt of a high school diploma,
 - completer, such as a vocational completer or a GED completer if the credential received is such, or
 - dropout, if the courses will not count toward any credential.
- *Students who move back and forth from foreign countries* are problematic because it is not always clear if they are continuing their schooling while gone. If proof is received that they are continuing their education, then they should be considered transfers out, and they become transfers in when they return. Otherwise they may be stop-outs. Because there is a national effort to help Migrant Students complete their education, they should be considered transfers.
- *Students who transfer to uncertified charter schools* should be considered transfers unless state law prohibits this. If the students are continuing their education toward a high school diploma, they should not be counted as dropouts.
- *Students who transfer to unaccredited private schools* are like those transferring to an uncertified charter school. As long as their education continues, they should not be considered dropouts.
- *Students who go to prison* are usually provided education programs if they are school-aged. There is no guarantee that they will receive a credential in prison. Nevertheless, if the assumption is that they are receiving education services in prison, then they should be considered transfers.

It should be noted that many older students who have dropped out of school do return to Adult Education programs where they receive either a GED or an actual high school diploma. While tracking eventual completion of a high school credential is desirable, especially in the spirit of tracking individual students, it is often difficult to know what has happened to a student. Enrollment in Adult Education may not require contacts with the last district of attendance, and GEDs may be taken in any state. While rarely possible to track by districts and schools, these students "appear" in Census data as eventual completers.

Cohorts


There are several issues associated with cohorts that need policies to ensure correct tracking and reporting. A cohort is generally considered to be the group of students that entered ninth grade together and can be expected to graduate together four years later. Some states have used a twelfth grade cohort and others a tenth grade cohort. Both of these avoid the ninth grade in which a large number of students drop out of school.

Diploma Counts 2006 noted that students were more likely to drop out of school in the ninth grade, particularly in high-poverty districts. This is consistent with what was found in looking at state totals for high school grades, where we saw the bunching of students in the ninth grade probably because the students had not completed enough credits to be promoted to the eighth grade, as mentioned earlier. Many of these students “stay” freshmen until they reach the age at which they may drop out. If a student makes it to the tenth grade, they are more likely to stay in school to graduate. Of course, this varies by state, but it seems to be generally true.

The commonly accepted high school cohort is the ninth grade, and NCLB calls for ninth grade to be the starting point for identifying on-time graduation. NCLB allows the cohort of some special education and limited English proficient students to be changed to better reflect the expectation for their completion.

While many special education students complete regular diplomas with minor modifications to their programs, other special education students are expected to complete a completely different academic program as reflected in their Individualized Education Plans (IEPs). These IEP students have until the state-identified age of 21 or older to complete the requirements of their IEPs and receive services. To include them with a ninth grade cohort that finishes in four years is inappropriate. A more reasonable cohort would be the one that is expected to finish school at the time the special education student reaches the age of 21. If the student finishes early, that is fine—he or she is counted as a completer with the cohort. If a student “ages out,” that is, does not complete the IEP requirements within the allotted time, then the student should be considered a dropout.

Limited English proficient (LEP) students are a more difficult group to classify. English ability varies when a student enters U.S. schools, and students may learn English at different rates. Nevertheless, students who enter high school classified as LEP should be given extra time to learn sufficient English to attain the requirements for a high school diploma. Middle school students likewise may need additional time. It is difficult to determine how much more time to give LEP students without research guidance. However, a policy could be developed that would give a student an additional year if they come to the U.S. in the seventh grade, two years in the eighth grade, and three years if they come to the U.S. anytime in high school. These years would be added to the cohort year of the student, and on-time graduation determined with the adjusted cohort year.

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Graduation and Dropout Rate Calculation

One of the debates over the past twenty years is about who to include in the graduation rate. Should Certificate of Attendance recipients (usually special education students who completed their IEPs) be considered graduates? What about GED recipients?

The NGA recommended graduation rate includes only those who receive a regular high school diploma. If the codes used above are implemented, it would be possible to calculate several types of completion rates, including the NGA rate.

Cohort Group - The On-time Graduation Rate (Graduating Class of 2008) would include all fall 2004 ninth graders plus any students who transferred into the school between fall 2004 and Spring 2008 who were in the ninth grade in fall 2004 minus the students who transferred out and minus the Exiters.

The formula should use the following components:

- **High School Graduation Numerator (Class of 2008) = Completers (IX)**
- **Denominator (Class of 2008) = Still enrolled + Dropouts + Completers**

A high school that wanted to look at the successful on-time high school completers by using as its numerator the following:

- **High School Completers Numerator (Class of 2008) = Completers (IX, X)**

To look at all types of completion for the Class of 2008, a school could use as its numerator:

- **Completers Numerator (Class of 2008) = Completers (IX, X, XI, XII)**

The dropout rate would use the same denominator as the graduation rate. Assuming that only the dropouts should be counted, the formula would use:

- **Dropouts Numerator (Class of 2008) = Dropouts (VI, VII, VIII)**
- **Denominator (Class of 2008) = Still enrolled + Dropouts + Completers**

A more realistic indication of high school non-completion would include students who left the regular high school program to obtain another type of credential. For instance, the GED is normally given to students who are dropouts; therefore, including them in the dropout rate may be considered more accurate. Similarly, completers of non-academic vocational programs may be considered dropouts. To calculate this type of dropout rate, the formula would use as the numerator:

- **High School Non-Completers (Class of 2008) = Dropouts + Completers (XI, XII)**

It is unlikely one would include students in Completer Category X as dropouts.

Summary

Tracking individual students is the key to determining the success of schools. Early identification of students with attendance and academic problems will help to ensure they get much needed help, but will not guarantee that they will succeed.

Holding schools, districts, and states accountable for graduation and dropout rates means that school staff must be better prepared to classify and report students in meaningful categories. Relying on an unknown category is a cop-out.

This paper identifies issues associated with implementing accurate graduate and dropout accounting and reporting. We are getting closer to accurate reporting, but as noted above, there are still some issues that need further study and more consideration. Students are, after all, unique, and their situations may vary considerably. Pushing them into “categories” always raises more issues than it solves. Still, educators need to pay attention to issues that affect a student’s success and failure, and make adjustments to their programs of study. That is the real reason for accountability.

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