

PURPOSE: EDUCATIONAL EXCELLENCE

The foundation of the Utah public education system is to provide an opportunity for educational excellence for each Utah student. This requires advocacy, focus, and prioritization of effort.

Education Elevated

Draft 2016



Utah State Board of Education

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Education Elevated by 2022

EXCELLENCE FOR EACH STUDENT

PURPOSE: EDUCATIONAL EXCELLENCE

The foundation of the Utah public education system is to provide an opportunity for educational excellence for each Utah student. This includes the Utah State Board of Education (USBE) setting the conditions so each student is prepared for college or a career. The USBE imperatives of Educational Equity, Quality Learning, and Systems Values, are established as a foundation for this success. Accountability focuses on outcomes of individual students and the overall effectiveness of public education. With this in mind, USBE defines a college and career student as one who:

- 1. graduates from high school;**
- 2. receives at least an 18 on the ACT; and**
- 3. accomplishes at least one of the following:**
 - a. a passing score on an advanced placement (AP) course; or**
 - b. a “C” or higher on a concurrent enrollment (CE) course; or**
 - c. a passing grade on an international baccalaureate course; or**
 - d. Career Pathway Completer (3.0 credits in an approved sequence of courses); or**
 - e. Career Pathway Concentrator (1.5 credits in an approved sequence of courses and the student earns an industry credential of value from an approved list of career and technical education (CTE) pathways).**

Based on this definition, it is estimated that 35% of our 2014-2015 cohort of graduating seniors were college or career ready. The USBE aims to improve these outcomes by setting a statewide goal of increasing the number of students who are college and career ready to 45% by 2022. In order to achieve these statewide goals together, each school must contribute by meeting early benchmarks and indicators for each student’s academic success and well-being.

Statewide Education Elevated Indicators by 2022

- 1. Increase Graduation Rate (current Graduation Rate 84%)**
- 2. Increase the number of students earning an 18 composite on the ACT**
- 3. Increase access to AP and CE offerings**
- 4. Increase the number of Career Pathway Completers to 40% and Career Pathway Concentrators to 75%**

Benchmark Indicators

High School	Middle	Elementary
<ul style="list-style-type: none"> • Graduation • Proficiency on EOL • ACT 18 • Access and Success in Advanced Courses (AP, IB, CE, CTE) • GPA • Achieves Mastery of Utah Standards 	<ul style="list-style-type: none"> • SAGE Math Proficiency (grade 8) • SAGE ELA Proficiency (grade 8) • Chronic Absenteeism • Credit Sufficient (grade 9) • GPA • Achieves Mastery of Utah Standards 	<ul style="list-style-type: none"> • Literacy Performance (grades 1-3) • SAGE Math Proficiency (grade 4) • SAGE Proficiency (grade 5) • Chronic Absenteeism • Keyboard Proficiency (grade 5) • Achieves Mastery of Utah Standards

Indicators for Student	State Goal	Data Exhibits
Graduates from high school	Increase graduation rate from 84% to 90%	5, 6, 7, 15, 16, 17, 18, 19, 20
Receives at least an 18 on the ACT	Increase the number of students earning an 18 composite on the ACT	8, 9, 10
Receives at least one of the following in advanced coursework:	Increase passing scores on AP courses	11, 12, 13
	a "C" or higher on a CE course	
	a passing grade on an IB course	
Meets at least one of the following:	Career Pathway Completer (3.0 credits in an approved sequence of courses)	14
	Career Pathway Concentrator (1.5 credits in an approved sequence of courses and the student earns an industry credential of value from an approved list of CTE pathway)	

Access and Equity

Increase access to advanced courses for all populations (High School)
Increase equity by closing the performance and achievement gap
Ensure equitable access to high quality instruction
Ensure equitable access to counselors and psychologists

Increase access to all advanced courses for students who are traditionally underserved
Increase access of CTE offerings to all students

Data

The data exhibits within this section provide the research framework as to the reasonable attainment of the Education Elevated Indicators. The indicators provide depth to the accountability narrative of the USBE Strategic Plan. As written, the accountability narrative states:

Accountability: Provide a transparent public educational system using evidence-based data that informs the public on the effectiveness of public education.

- Provide a transparent assessment system that includes diagnostic information to help the parent, child, and teacher understand how to improve performance
- Utilize a standards-based approach in all measuring systems
- Provide a robust data-driven school accountability system

Imperative: Determine what to measure, why to measure it, and how to measure it

The focus of USBE will be to clearly define the imperative in determining what to measure, why we are measuring it, and how the measuring will be conducted. First, a baseline must be established to determine the current reality of the indicators being measured for College or career Readiness.

Current Reality

The Education Elevated Readiness by individual school adds requirements beyond the Federal four-year graduating cohort. In addition to being a graduate from high school; the student will need to pass one SAGE assessment either in Language Arts, Mathematic, or Science; received an 18 or higher score on the ACT; and complete at least one of the following: pass an AP course, pass a concurrent enrollment course, pass an IB course, and complete two or more CTE courses.

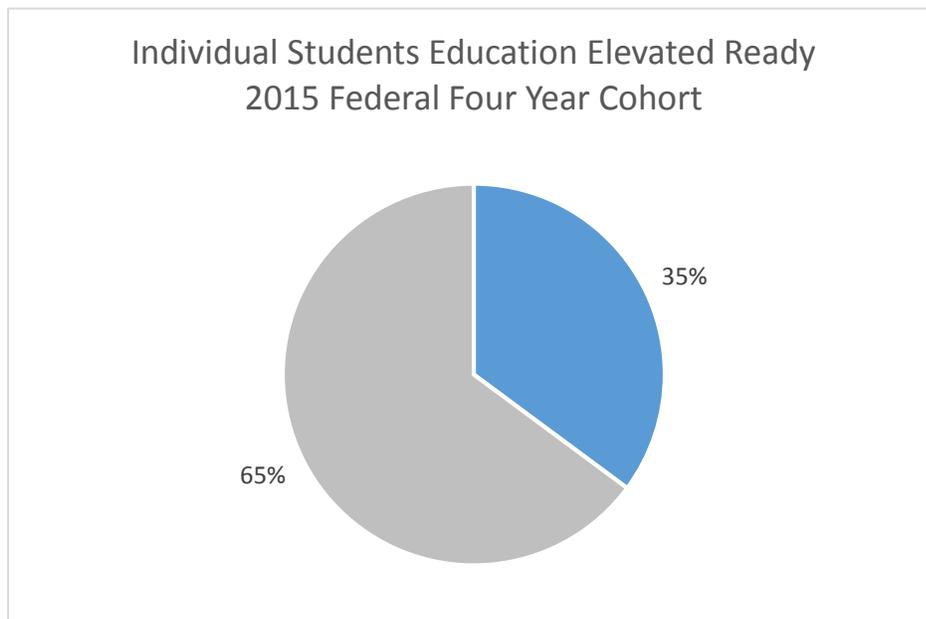
Exhibit 1: Current State Education Elevated Indicators

Cohort Year	Grad Rate	SAGE	ACT Rate	State Credits Earned Rate	AP Rate	IB Rate	CTE Rate	CE Rate
2014	83.1%	50.9%	69.5%	91.7%	29.3%	1.1%	90.0%	25.9%
2015	84.2%	56.0%	65.4%	92.3%	31.1%	1.5%	90.3%	27.2%

For a student to be considered college or career ready, each requirement is brought into the calculation. Only one year’s worth of data is available for use as the graduation cohort of 2015 is the first group to have the SAGE tests during their 11th grade career (Exhibit 1). Refining the business rules of who to include is needed and the 2016 data may need additional adjustment. The next calculation of the 2016 graduation cohort will be completed in November.

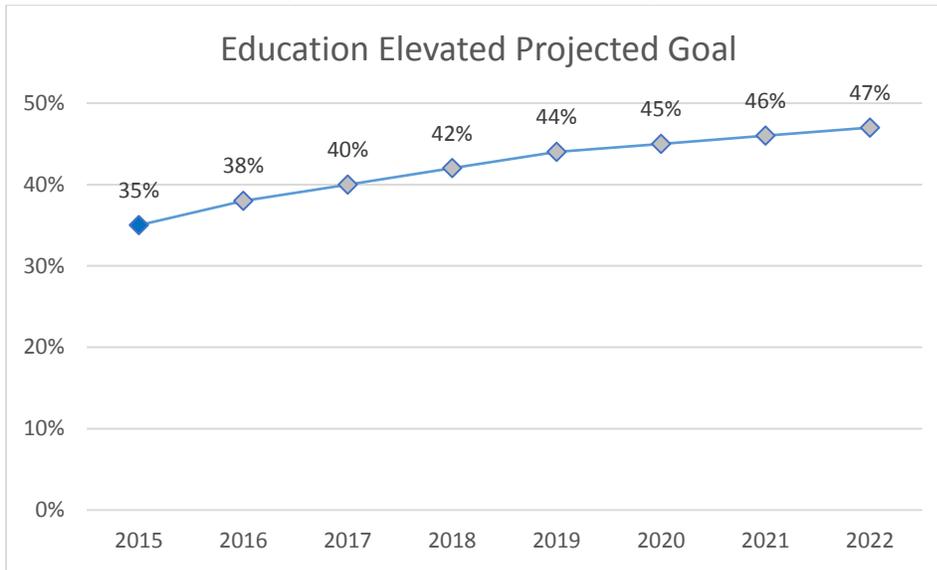
The percentage of the 2015 cohort of all individual students meeting the Education Elevated requirements is shown in Exhibit 2.

Exhibit 2: Individual Students Education Elevate Ready



Starting with **35% for Individual Students Education Elevated Ready**, an achievable goal of **12 percentage points increased** over five years, having a two to three point change each year is recommended. A possible trajectory target is shown in Exhibit 3.

Exhibit 3: Possible Trajectory of Students Attaining all Indicators



The overarching goal represents a combination of all indicators. As these indicators change differentially, Exhibit 4 represents the individual indicators. Note: the State has decreased a point on SAGE and is declining on ACT (see Exhibit 8 for an explanation of the downward shift in recent years). On the other hand, the trend in the graduation rate is promising; it is also discussed in the next section.

Exhibit 4: CCR State-Level Indicator Time Series

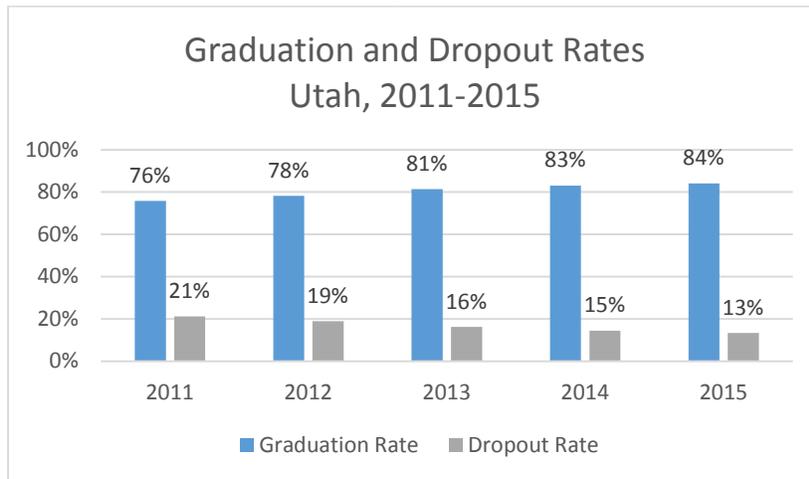
Education Elevated Readiness State-Level Indicator Time Series								
Year	Graduation Rate	ACT Composite	SAGE Proficient	Advanced Courses	Advanced Courses Detail			
					CTE	CE	AP	IB
2016			55.1%					
2015	84.2%	65.4%	56.0%	92.3%	90.2%	39.5%	31.1%	1.5%
2014	83.1%	69.5%	50.9%	91.6%	89.9%	38.7%	29.3%	1.1%
2013	81.4%	69.5%		91.7%	89.8%	39.1%	29.9%	1.0%
2012	78.2%	72.3%		90.7%	88.6%	39.5%	28.8%	0.8%
2011	75.8%	81.5%		89.9%	87.6%	36.8%	27.5%	0.7%
2010	74.8%	82.0%		88.1%	84.9%	34.3%	25.1%	0.5%
2009	71.7%	81.9%						
2008	69.2%	82.6%						
2007		82.3%						
2006		82.4%						
2005		83.3%						
2004		80.2%						
2003		79.2%						

Readiness Data

Graduation Rate Goal by 2022

Achieving the goal of a **90% graduation rate by 2022 is statistically possible**, to move the current 84% to 90%, which would entail a six-point increase. The current trend since 2011 has shown a two point increase each year. This appreciating trend of the rate is a result of both school personnel working to help more students meet their graduation goals and the improved data submission and auditing process. It is expected this trend will slow as the influence improved data submission reaches its summit. It is likely that the higher goal of 90% for the state will become very difficult to achieve.

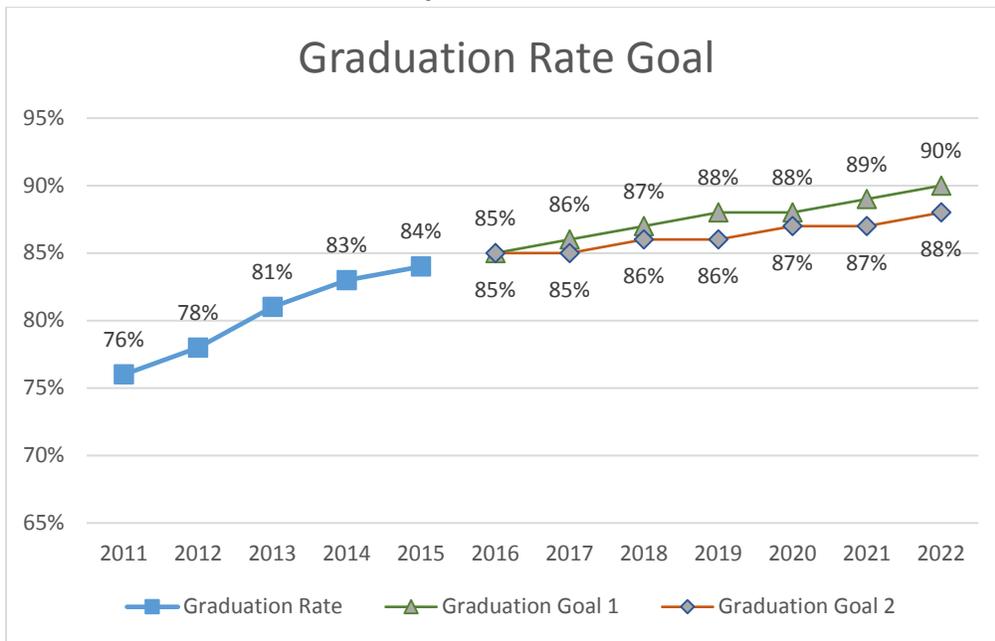
Exhibit 5: Graduation and Dropout Rates Utah



Recommendation:

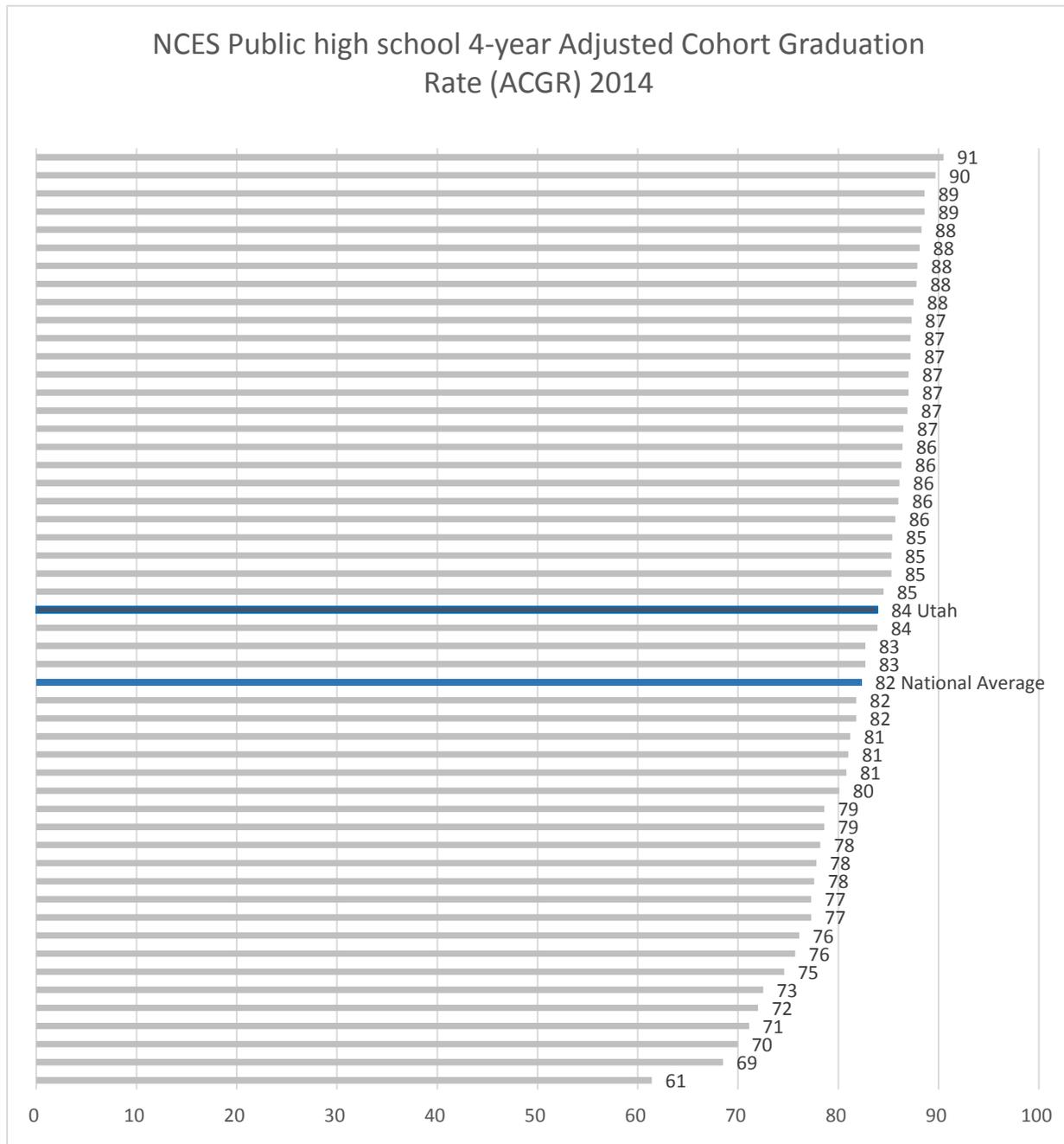
Starting with a graduation rate of 84%, a four-point increase to **88% over five years at the state level may be a more realistic and achievable goal** than a goal of 90% but both are possibilities. Exhibit 6 illustrates the two possible trajectory targets.

Exhibit 6: Illustrated Possible Trajectories



According to National Center for Education Statistics (NCES) data, the national Adjusted Cohort Graduation Rate (ACGR) for 2014 is 82%. Only nine states have achieved a graduation of 88% or higher with only two states at 90%. Exhibit 7 illustrates Utah’s place among the other states (including Washington D.C.) at the national comparison level. 25 states have achieved a graduation over our current 84%. (http://nces.ed.gov/programs/digest/d15/tables/dt15_219.46.asp)

Exhibit 7: NCES Public High School 4-year ACGR for 2014



Increase the number of students earning an 18 composite on the ACT

Reaching an average composite score of 22 is improbable. Exhibits 8 and 9 illustrate the issue. Exhibit 8 shows that the state was within a reasonable distance of scoring a 22 with a self-selected group of college-bound students from 2003 to 2011 and, in fact, attained the goal in 2005. But with the change to requiring every 11th grade student to take the ACT, reaching that goal has become much less likely.

Exhibit 8: Distance from ACT Goal

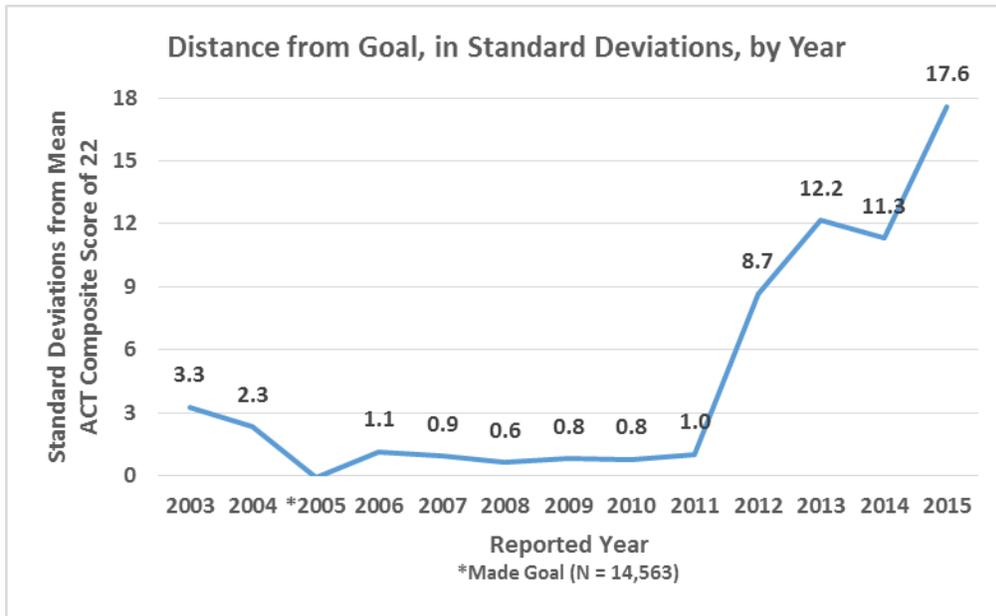
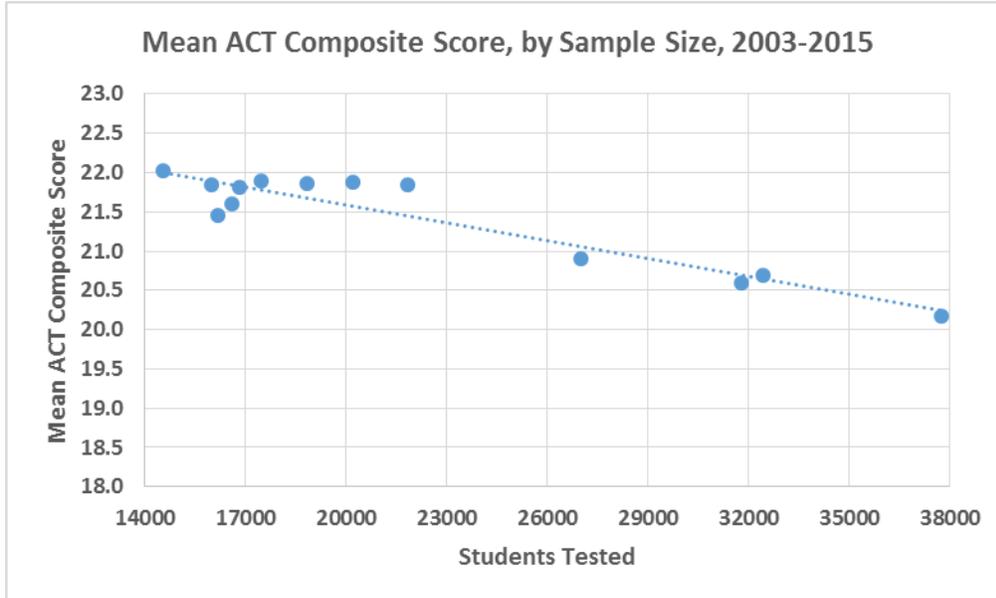


Exhibit 9 shows why this is the case: the relationship between the number of students who take the test and the average score is very strong ($r = .93$). Moving an indicator designed to produce a normal distribution of scores in a large population, even fractions of a percentage point, would be heroic.

Exhibit 9: Mean ACT Composite Score



For example, in 2015 the mean was 20.17, and the standard error of the mean was .104. In this situation, to move the state from 20.17 to 20.48 — that is, to move the state *three standard deviations* beyond the mean — would be a very impressive achievement.

Exhibit 10 Expected State ACT Performance by ACT Composite Score

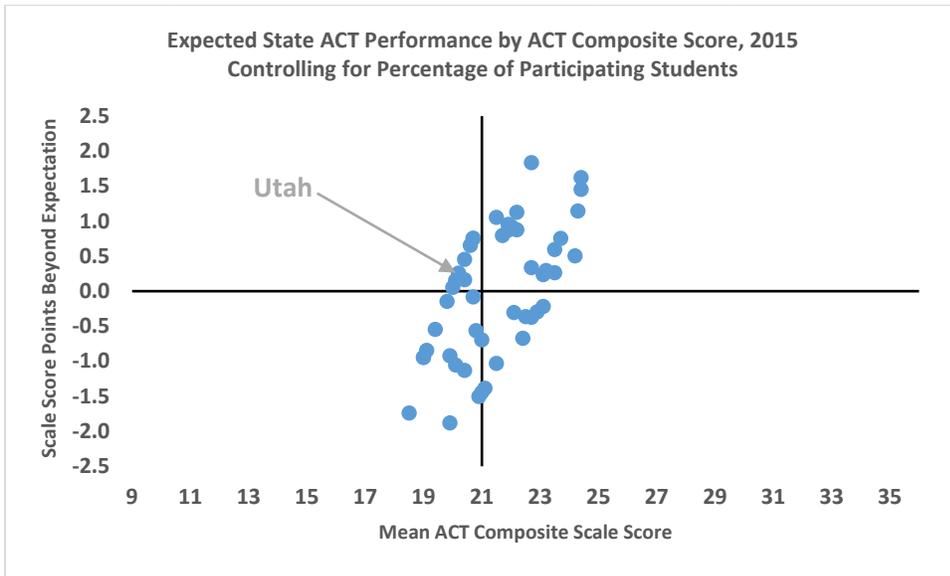
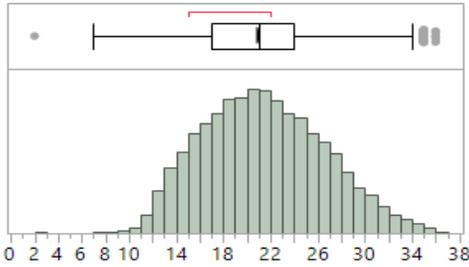


Exhibit 10b

Distributions reported_year=2012

std_composite

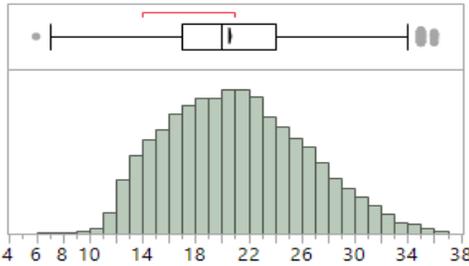


Quantiles		
100.0%	maximum	36
99.5%		34
97.5%		31
90.0%		28
75.0%	quartile	24
50.0%	median	21
25.0%	quartile	17
10.0%		14
2.5%		12
0.5%		11
0.0%	minimum	2

Summary Statistics	
Mean	20.900937
Std Dev	5.0804825
Std Err Mean	0.0309114
Upper 95% Mean	20.961525
Lower 95% Mean	20.840349
N	27013

Distributions reported_year=2013

std_composite

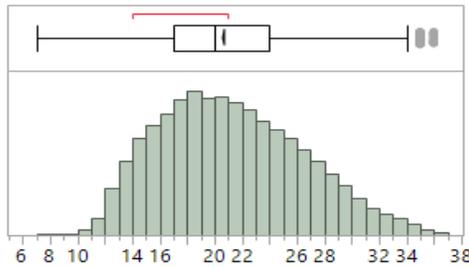


Quantiles		
100.0%	maximum	36
99.5%		34
97.5%		31
90.0%		28
75.0%	quartile	24
50.0%	median	20
25.0%	quartile	17
10.0%		14
2.5%		12
0.5%		11
0.0%	minimum	6

Summary Statistics	
Mean	20.589653
Std Dev	5.1442883
Std Err Mean	0.0288577
Upper 95% Mean	20.646215
Lower 95% Mean	20.533091
N	31778

Distributions reported_year=2014

std_composite

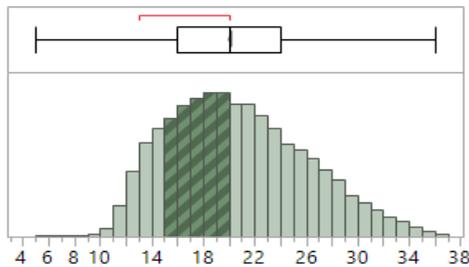


Quantiles		
100.0%	maximum	36
99.5%		34
97.5%		32
90.0%		28
75.0%	quartile	24
50.0%	median	20
25.0%	quartile	17
10.0%		14
2.5%		12
0.5%		11
0.0%	minimum	7

Summary Statistics	
Mean	20.698017
Std Dev	5.197374
Std Err Mean	0.0288658
Upper 95% Mean	20.754595
Lower 95% Mean	20.641438
N	32419

Distributions reported_year=2015

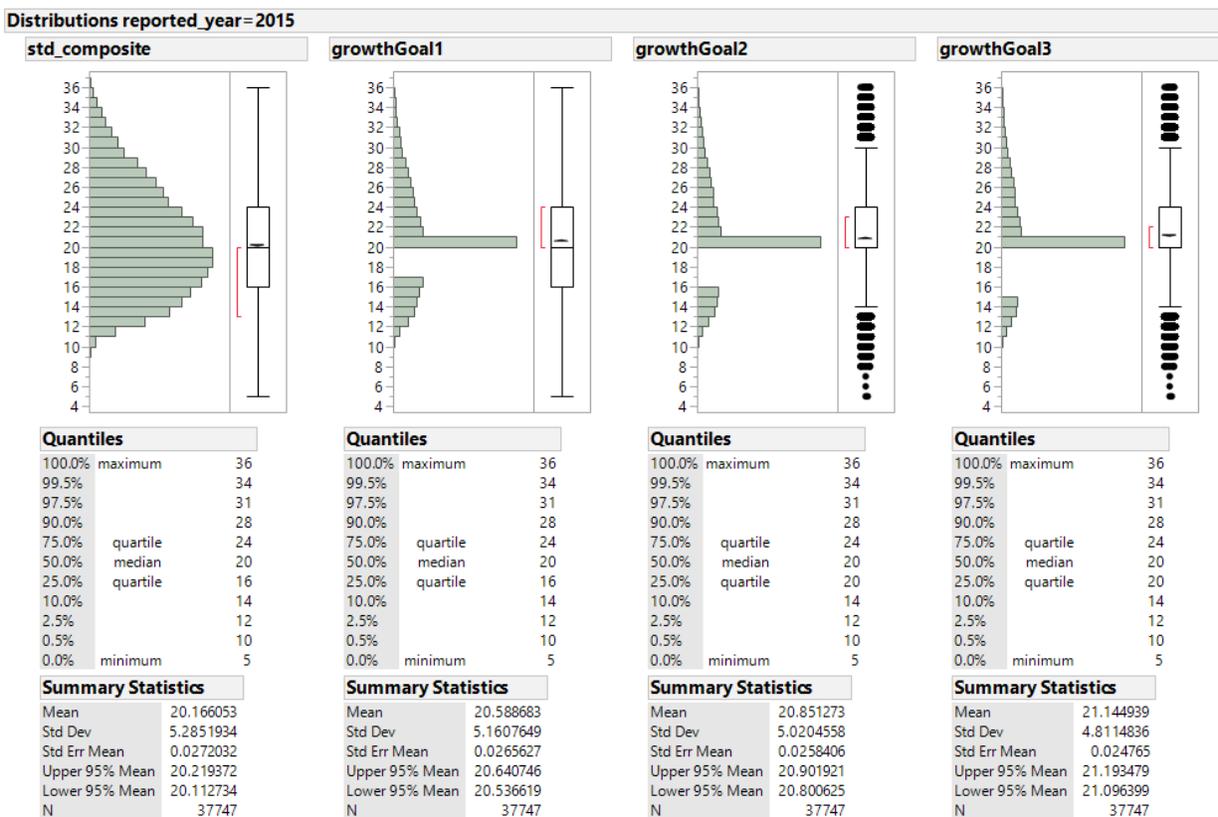
std_composite



Quantiles		
100.0%	maximum	36
99.5%		34
97.5%		31
90.0%		28
75.0%	quartile	24
50.0%	median	20
25.0%	quartile	16
10.0%		14
2.5%		12
0.5%		10
0.0%	minimum	5

Summary Statistics	
Mean	20.166221
Std Dev	5.2852631
Std Err Mean	0.0272043
Upper 95% Mean	20.219542
Lower 95% Mean	20.1129
N	37745

Exhibit 10c How to Reach a Growth Goal



Possible Recommendations:

Goal setting for the ACT indicator needs to be reevaluated. Two options of using an average to determine the state goal may be an option. One option acknowledges that gains are likely to come in fractions of a scale score point and could use the standard error of the mean as a reference in goal setting from one year to the next. For example, using the example above, a goal for 2016 might have been 20.27, which is the 2015 mean (based on 37,737 students) plus a little less than one standard error above the mean.

A second option acknowledges that the ACT is primarily a norm-referenced test. It may be more appropriate to relate average Utah performance to that of other states than to a somewhat arbitrary number. This would provide information on the competitive position of the typical Utah student in a national context. The quadrant chart in Exhibit 10 shows the position of Utah for 2015. Utah is in the second quadrant, which means that its performance is better than expected given its very high participation rate but lower the national average for that year (21.0). One goal could be to attain the national average. Another goal could be to continue to exceed expectations.

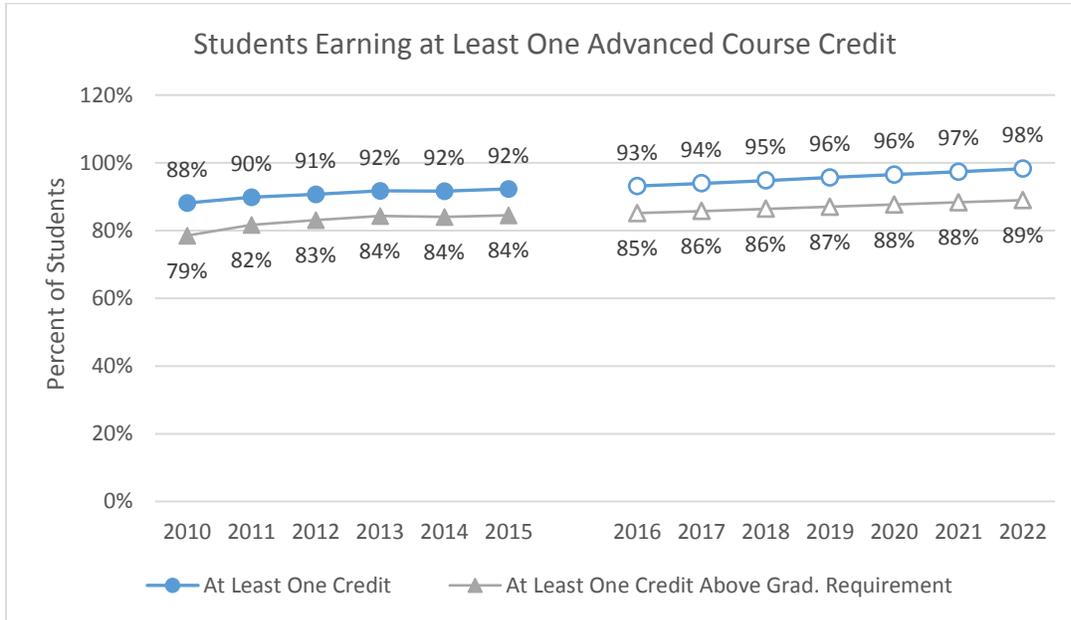
Increased Access to Advanced Course Offering

There are four basic advanced course options for students in Utah high schools: Advanced Placement (AP), International Baccalaureate (IB), Concurrent Enrollment (CE), or Career and Technical Education (CTE). For the graduating class of 2015, approximately 92% earned credit in at least one advanced course. This percent increased from 2010 when 88% of students took at least one advanced course.

This is an average increase of 1% each year. If this rate of increase were to continue, the rate for the graduating class of 2022 would be 98%.

Currently, in order to graduate it is required to earn at least one CTE credit. If the goal for students would be to have them earn one advanced credit beyond the graduation requirement, 85% of the 2015 graduating class would have met this goal. This rate is increasing at about .7% each year. This would place the 2022 class at a rate of 89% of students earning at least one advanced credit beyond the graduation requirement.

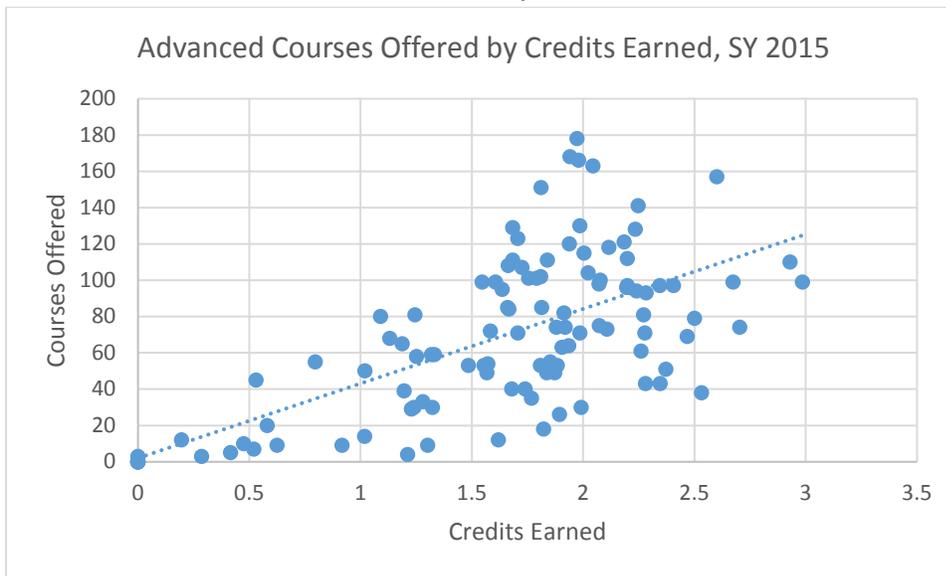
Exhibit 11: Students Earning at Least One Advanced Course Credit



The expressed goal for the state would be to increase AP course offerings. In school year 2015, the number of AP courses offered by a regular high school (grades 9-12 or 10-12) ranged from 0 to 21. An average school offered eight distinct AP courses. This has been constant from 2012 through 2015 with the average number of AP course offered hovering around eight.

In considering the goal of increasing advanced courses offered in order to increase the amount of credits earned by students, data from school year 2015 was analyzed to look for a relationship between courses offered and credits earned. This data included all advanced courses. A standard correlation model shows that there is a moderately-strong (.65) relationship between the number of advanced courses offered and the average amount of advanced credits earned. In other words, the more advanced courses the school offered, the more advanced credits, on average, the students earned. This same pattern held true for just AP courses as well. However, it is unknown if the students earned more credits because more courses were offered or if the school offered more courses because students were taking advantage of the courses offered.

Exhibit 12: Advanced Courses Offered by Credits Earned



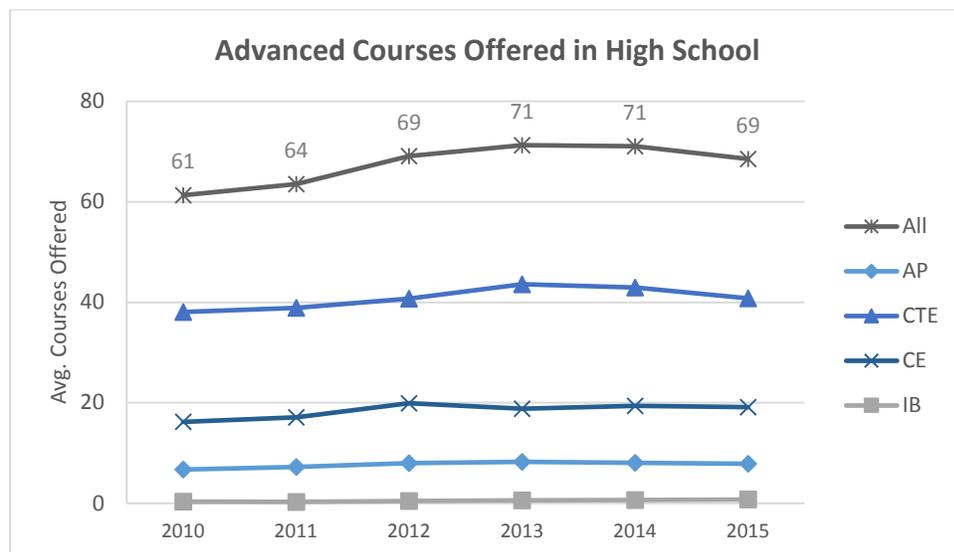
*Five outlier schools were removed from analysis. These were schools that offered relatively few advanced courses but had a high average of credits earned by students.

Recommendation:

For the individual student goal, it is possible that the rate of students taking advanced courses will continue to increase. However, the level is already high and has started to show some indications of leveling off. Taking this into consideration, the goal should be conservatively made.

For the state goal, the AP program is only one of several programs that offers advanced level curriculum in high schools. Schools may also offer IB courses, CE courses, and CTE courses. While one school may focus on offering AP courses, another may choose to offer more IB courses. It is recommended that all types of advanced course enrollments be taken into consideration for the state goal. On average, schools offer eight AP courses but 69 advanced courses overall, the majority of which are CTE courses.

Exhibit 13: Average Advanced Courses Offered in High School by School Year



CTE Course Concentrators and Course Completers

Exhibit 14: CTE Concentrators and Completers

	% Concentrators	% Completers	% High School Completion (includes GEDs)
14-15	24%	58%	96.6 %
13-14	25%	58%	98.1 %
12-13	22%	54%	97.5 %
11-12	6% *	27% *	95.5 %
10-11	18%	49%	98.0 %
Stretch	40%	75%	

* Year 11-12 – transition from Legacy Clearinghouse App to UTREx. Data scripts weren't compiling all CTE students.

Data shows that students who concentrate (1.5 credits) in a CTE pathway (sequence of courses) minimized the risk of students dropping out of high school. In fact, the more students participate in Career and Technical Education, the higher their graduation rate, academic motivation, school engagement, college aspirations, and employability skills. The increases are possible and even likely with an emphasis on career pathways.

(Office of Career, Technical and Adult Education data; Civic Enterprises et al., Building a Grad Nation: Progress and Challenge in Ending the High School Dropout Epidemic: Annual Update, 2014)

Appendix

Reduced Postsecondary Remediation

The information presented below suggests that there is no obvious academic gain in reducing remediation. This is an important point in assessing costs and benefits for various possible goals regarding postsecondary remediation.

The Utah System of Higher Education (USHE) published a report in April 2016 that describes the effects of remedial course taking, with a specific focus on math, for students entering college in the state of Utah. ***In Utah, 25% of first-time freshmen enrolled in college the fall after high school graduation are enrolled in a remedial course*** (USHE 2016). For institutions within USHE, the average rate of remediation is similar to the national rate. Across the nation, more than half a million college freshmen had to enroll in remedial courses during their first year of college, or 1 in 4 students who enter college the fall after high school graduation take remedial courses (Education Reform Now). This comes at a cost of \$1.5 billion annually for college remediation courses throughout the nation (Education Reform Now).

Math courses are the most common courses that students enroll in for remediation in Utah. Remedial or developmental math courses are those math courses numbered 1010 and lower at colleges and universities within USHE, not including concurring enrollment. Last year, USHE published an analysis on students who graduated high school and within 1 year enrolled at a USHE college or university in 2008-2012, the most recent cohort available at the time. While nearly 1/5 of students successfully completed their GE math requirement before college through CE, AP, or ACT, the same amount of students never enrolled in a math class during the period of 2008-2012 (USHE 2015). More importantly, the largest percentage of students enrolled in Math 1010 or lower as their first math class in college (USHE 2015). USHE found that 8 out of 10 students who placed in a remedial math course went on to qualify for enrolling in a GE math course required for graduation (USHE 2015). ***Students who took remedial math courses and met their math requirement, had the same rate of degree completion as those who complete their math requirement without remediation or by other means (USHE 2016). A USHE study on math remediation and graduation similarly found that taking math—even remedial or developmental math—is the key to college success (USHE 2016).***

Interestingly, almost half of the students enrolled in Math 1010 or lower in 2014-2015 were age 22 years or older (USHE 2015). High school graduates attending a USHE institution within 1 year of graduating in 2008, and who were enrolled in any math class during their first year in college, were 3 times more likely to complete their general math requirement within 5 years (USHE 2015). The risk of delaying math past the first year was worse for those who took a year or more off from school between high school and college- they were 7 times less likely to complete the general math requirement within 5 years (USHE 2015). The outcome was even worse for students age 25 years and older who didn't take math their first year- they were 15 times less likely to complete the general math requirement within 5 years (USHE 2015). This is important to note because the largest number of students enrolled in remedial math are not those coming directly out of high school.

Some efforts have been made to reduce remediation and improve college preparation in high school by the Board of Regents in Utah. They have implemented several initiatives to decrease the number of students having to enroll in such remedial courses (USHE 2016). In 2014, the Board of Regents adopted USHE's recommendation of taking math through all years of high school (through at least pre-calculus), including completion of Math I, II, and III. The Regents' scholarship was established in 2008, encouraging Utah students to prepare academically for college during their 4 years in high school. Concurrent

enrollment offers students the opportunity to enroll in college courses while still in high school, and as of April 2016, over one third of Utah’s high school juniors and seniors were enrolled in at least one CE course (USHE 2016). StepUp to Higher Education is a social awareness campaign by USHE that encourages all Utah students to think about their futures, prepare for and complete college.

It is difficult to say the likelihood of decreasing the current figure of 25% of first-time freshmen in Utah that are enrolled in remedial courses after high school. USHE has more influence on this matter than the State Board of Education. We can continually strive to improve the state’s high school curriculum so that students are better prepared for college, especially in math. However, there are many contributing factors to why students enroll in remediation courses- it is not necessarily due to the quality of teachers or courses in the high school education system. Many of these factors may be outside the control of USBE, or USHE.

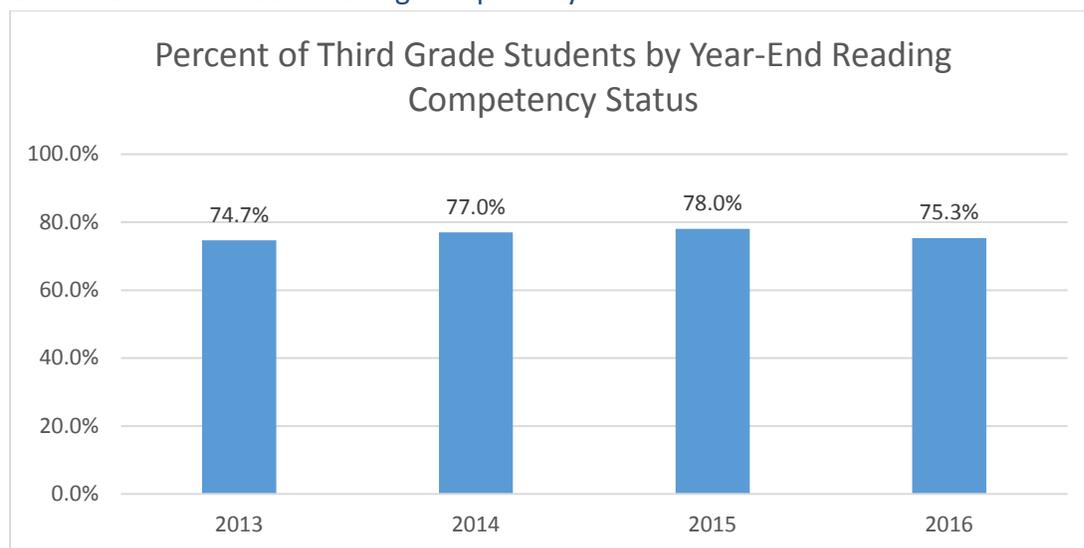
Sources:

- <http://higheredutah.org/new-report-highlights-the-costs-of-college-remediation/> (USHE report)
- <https://edreformnow.org/release-americans-spending-at-least-1-5-billion-in-college-remediation-courses-middle-class-pays-the-most/> (National report)
- <http://higheredutah.org/math-and-graduation-the-role-of-remedialdevelopmental-math-courses-in-college/> (USHE math specific report)

Increased Percentage of 3rd Grade Students Reading on Grade Level

Exhibit 15 shows the percent of students who met reading competency standards at the end of their third grade year. The state-wide percentage has remained relatively stable during the last four years. Statistical analyses of the reading on grade level data suggest that reading interventions can make a difference in students’ reading competency level, however, the negative impact of risk factors (especially when a student has more than one risk factor) on reaching benchmark reading targets are hard to overcome, even with interventions. *(Note: the referenced analysis was limited to looking at indicator data on whether a student received any reading intervention(s) during the year. Detailed data on specific interventions is not available.)*

Exhibit 15 Third Grade Reading Competency Status



Recommendation:

This is a relatively stable time series that is not expected to trend substantially in one direction or the other in the near future. A recommendation to maintain current stability is advisable.

Interventions as they are currently being applied are improving reading outcomes for the students who need and receive them; however, statistical analysis suggests that this is not enough to both overcome risk factors (e.g., economic disadvantage, students with disabilities, English learners) and substantially raise the percent of third graders who meet end of level competency standards. As such, a further recommendation would be to create a goal to increase the prevalence and efficacy of early childhood reading interventions.

As better data is collected on reading competency levels and trends (USBE received DIBELS composite scores for the first time in SY 2016), further research will be conducted to aid in setting reasonable goals.

Elementary and Early Secondary Benchmarks:

A decrease in 9th grade students at-risk for dropout

Assuming the question implies decreasing the number of students *at-risk* for drop out, we can currently provide only a limited response at the state level on a few indicators. If the question is asking to decrease the number of ninth grade drop outs, then that's a different issue entirely.

First, we need to know how to measure an *at-risk* student. ***According to Utah State Board of Education Rule R277-606, a "risk factor" means low academic performance as measured by grades, test scores, or course failure; poor behavior as measured by office disciplinary referrals, suspensions, or expulsions; and absenteeism, whether excused or unexcused absences, and including days tardy and truant.***

According to the literature, an effective way for high schools to decrease students at risk for dropout is an Early Warning System (EWS). The University of Chicago Consortium on Chicago School Research (UChicago CCSR) did a particularly relevant study on ninth graders in the late 1990s. They developed the "on-track" indicator. A student is considered on-track if they earned enough credits to move on to tenth grade, and earned no more than one F in a core course per semester. Course failure had become common even for students with strong grades and test scores in 8th grade (UChicago CCSR).

In 2007, Chicago schools followed UChicago CCSR research reports and started new strategies to decrease course failures for ninth graders. They found that the transition between eighth and ninth grade played a critical role in long-term student outcomes. Additionally, they found that attendance and course performance in ninth grade were highly predictive of high school dropout (Roderick, Kelley-Kemple, Johnson, and Beechum 1). Students who end their ninth grade year on-track are almost four times more likely to graduate from high school than those who are off-track (UChicago CCSR). A student's on-track status is more predictive of high school graduation than race/ethnicity, level of poverty, or test scores (Roderick, Kelley-Kemple, Johnson, and Beechum 2).

Chicago Public Schools initiated strategies to improve the transition from eighth to ninth grade and summer transition programs. They focused on students who were on-track to graduation, examining their improved performance and the impact that these improvements had on long-term student outcomes. In 2008, Chicago schools adopted the What Works Clearinghouse (WWC) approach of using

data systems to accurately diagnose dropout rates and identify students at risk of dropping out (Roderick, Kelley-Kemple, Johnson, and Beechum 2). They developed data reports that allowed high school administrators and teachers to monitor student performance in real time and identify students at risk, and intervene before students fell too far behind. Their studies found that as students transition to high school, their grades, attendance, and school engagement decreased substantially.

High schools had high flexibility in how they used the data. The range of strategies and approaches developed around data at both the high school and district level. Between 2007 and 2013, the CPS on-track rate increased by 25 percentage points, from 57 to 82 percent (Roderick, Kelley-Kemple, Johnson, and Beechum 2). This represents an additional 6,900 students who finish ninth grade each year with enough credits to become sophomores, and without significant course failures. These improvements occurred across both genders, all racial/ethnic groups, and all levels of incoming achievement. However, it was not known at the start whether these efforts would make substantial improvements in graduation rates and improve performance in the following years.

To date, we have been working on developing ideas for an EWS in the state of Utah. Some school districts such as Canyons and Davis, have already made efforts to implement an EWS.

Using the Chicago and Davis study as a guide for developing an EWS in Utah, **we found that the two biggest indicators of predicting high school dropouts are GPA and attendance.** At this time, Utah does not have good data at the state level on student course outcomes, behavior and incidents.

Using the 2015 cohort, we put together a rough data sample to compare Utah graduation rates and attendance rates.

Exhibit 16 Graduation Rate by Attendance Rate

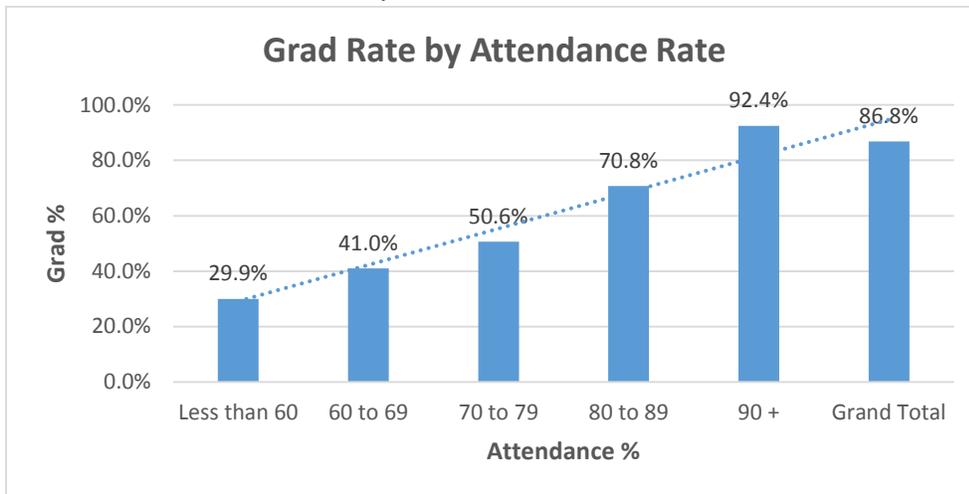


Exhibit 17 Graduation Rate by Attendance Rate with a GPA of 2.0 or Higher

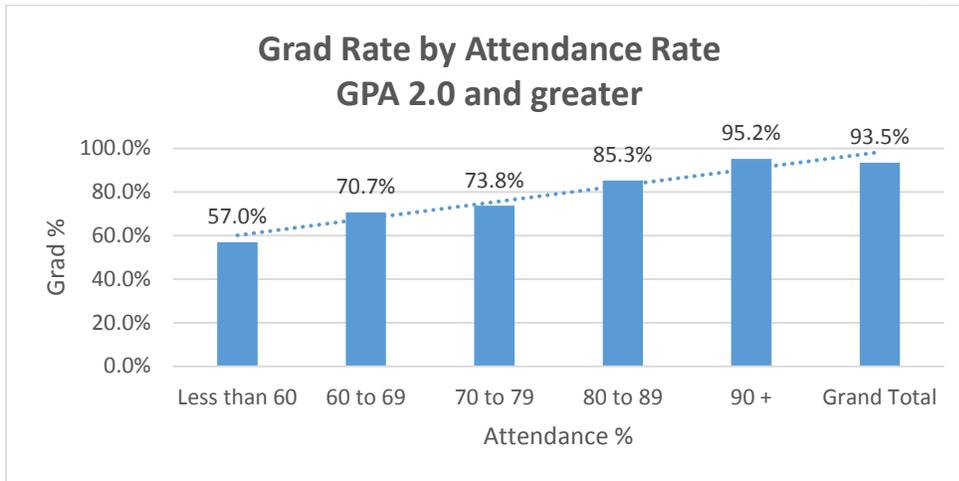
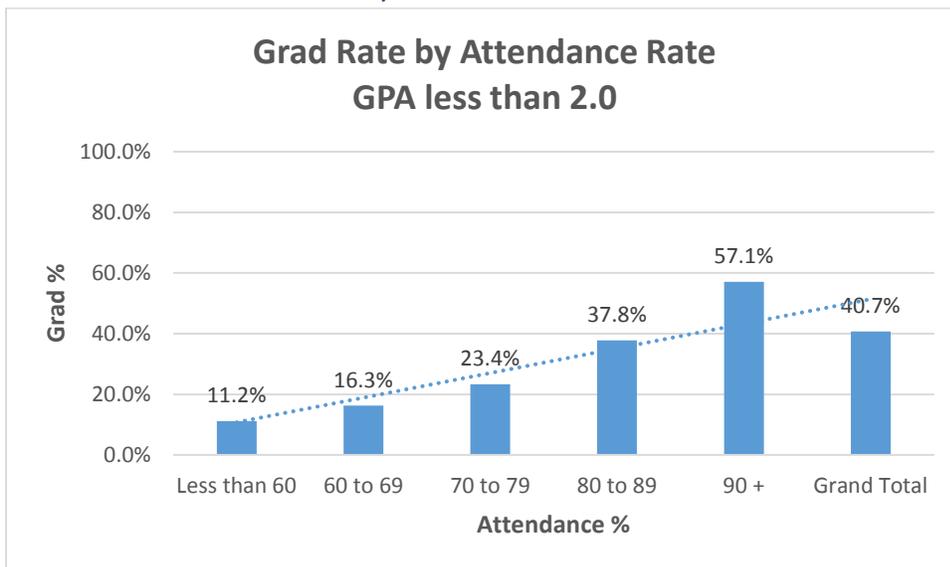


Exhibit 18 Graduation Rate by Attendance Rate with a GPA of Lower than 2.0



We did some initial regression analysis to further show that attendance and GPA are key indicators of high school dropout, and found that these effects were highly significant. However, our analysis of the 2015 cohort only shows what has already happened, and the students who have already dropped out. An effective Early Warning System would have some predictive power to help identify those students still in school who are at risk of dropping out, and allow school administrators to initiate preventative measures and resources.

Sources:

- <https://consortium.uchicago.edu/sites/default/files/publications/On-Track%20Validation%20RS.pdf>
- <https://consortium.uchicago.edu/sites/default/files/publications/p78.pdf>

The following two charts compare the single year ninth grade dropouts in each year between 2013 and 2015. The first shows a comparison of all ninth graders that dropped out, and the second shows each subgroup that might be at higher risk for dropping out in a given year.

Exhibit 19 Ninth Grade Dropout Rate

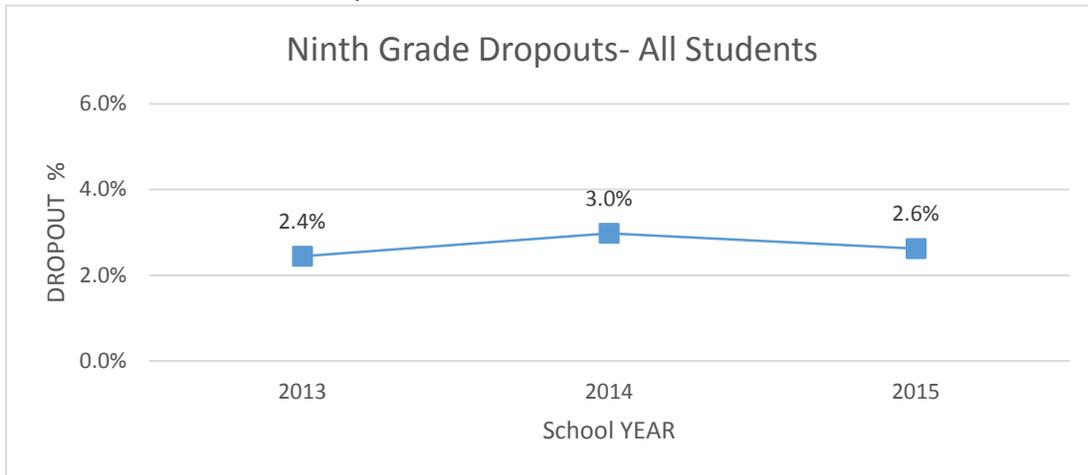
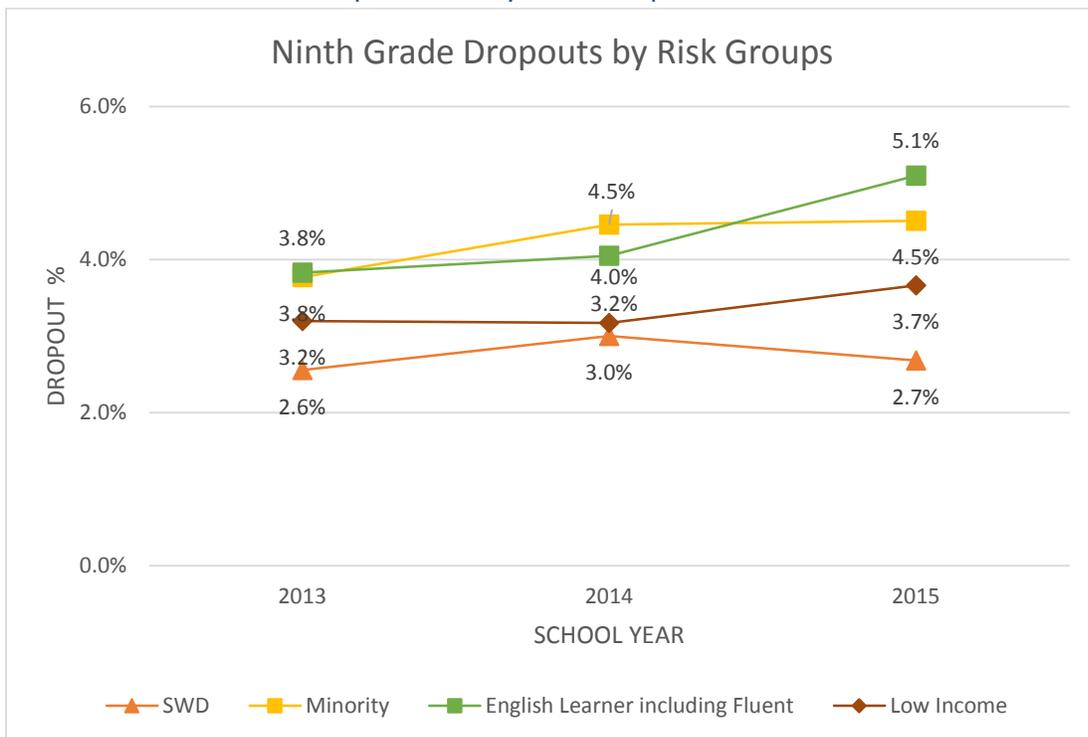


Exhibit 20 Ninth Grade Dropout Rate by Risk Groups



Overall, the percentages of ninth grade dropouts increased from 2013 to 2014, and decreased from 2014 to 2015 (with 2015 being slightly higher than 2013). With only 3 years of data, it is difficult to show a trend for 2022, or whatever future period is specified in a goal to decrease ninth grade dropouts.

Recommendation:

We are still in the process of working on this project. Ideally, we would hope to create a simple model that would allow administrators to enter a particular student's GPA and attendance rate, and generate a student's predicted probability of dropping out. However, this is a rough start to a very large research task.