Improving College Readiness Measures at Frederick Douglass Academy

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Prepared for:

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Acknowledgments

I would first like to thank Harlem Lacrosse, especially their Director of Development Kim Appelt, for giving me the opportunity to work with their great organization for my Applied Policy Project. Mrs. Appelt was extremely generous with her time, always willing to speak with me regarding potential areas of improvement for my APP.

I would also like to thank Professor Andrew Pennock. A great deal of credit for the final direction my APP took goes to Professor Pennock. From the beginning of this process he made himself available to help with all levels of this project. He was truly a mentor in every sense of the word; advising me on how to not only create a high-quality product but fostering my development as a policy analyst that I intend to carry with me into my future career. I would like to thank my fellow classmates Pobo and Turner for the guidance they provided on this project throughout the spring semester. Lastly, I would like to thank my brother Ryan, as I was able to lean on him for advice and guidance throughout this project.

Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy at the University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

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Executive Summary

In 2005, the average full-time worker in the United States, with a four-year degree, earned $50,900. 62 percent more than the $31,500 earned by someone, who works full-time, with only a high school diploma (Baum and Ma, 2007). While the importance of a college degree continues to grow in today's job market, the measures in which we evaluate our country's high school students' college readiness has proven to be stagnant and insufficient.

In 2012, the state of New York graduated a record number of students from public high schools. While a reported 74% of 12th grade students graduated, only 33% of those students were deemed "college ready", based on student performance thresholds of the NY Regents examinations (Engage NY). The New York State Education Department (NYSED) only measures college readiness using a student's standardized test performance, while disregarding other key metrics that shape college readiness. By ignoring these metrics when formulating state education standards and assessments, it is reasonable to believe that the number of students who were not prepared for college was lower than 33%.

This APP examines literature regarding what college readiness truly is, how to define it, the current resources New York uses to measure college readiness, and then ultimately metrics and policy alternatives to best predict college success. The factors listed above will be examined through the lens of a "proof of concept" at Frederick Douglass Academy (FDA) in Harlem, NY. Frederick Douglass Academy is a public high school serving the Harlem community of New York City. All potential policy alternatives proposed will be limited to the population of FDA students.

The purpose of any proposed solution will be to help FDA best measure the college readiness of their students by defining college readiness as, "A student who can qualify for and succeed in entry-level, credit bearing courses leading to a baccalaureate degree without the need for remedial of developmental coursework"(Conley 2012). Each policy alternative was evaluated on cost, generating student feedback, feasibility, and overall effectiveness of measuring college readiness. The alternatives considered were:

1. Implementation of a schoolwide assessment measuring "non-cognitive" skills
2. Publish a high school feedback report that includes postsecondary performance indicators
3. Require a senior capstone project requirement for graduation

Based on the analysis of each alternative, I recommend that Frederick Douglass Academy **implement a schoolwide assessment measuring "non-cognitive" skills**. Furthermore I strongly encourage FDA to utilize the ACT Tessera to evaluate their students "non-cognitive" skills.

Introduction

In 2005, the average full-time worker in the United States, with a four-year degree, earned $50,900. 62 percent more than the $31,500 earned by someone, who works full-time, with only a high school diploma (Baum and Ma, 2007). A study by the Bureau of Labor Statistics found that twelve of the 20 fastest growing professions require an associate degree or higher (Bureau of Labor Statistics). There is no doubt of the importance a college degree holds in the current job market. This makes it more crucial than ever that the systems and resources put in place to measure college readiness in our high schools are as thorough as possible. When appropriate metrics and assessments are implemented at the state level, policymakers can begin to reshape our secondary education system to best ensure a students' success in postsecondary education. This APP will examine literature regarding what college readiness truly is, how to accurately define it, the current resources New York uses to measure college readiness, and then ultimately metrics and policy alternatives to best predict college success. The factors listed above will be examined through the lens of a "proof of concept" at Frederick Douglass Academy (FDA) in Harlem NY. Frederick Douglass Academy is a public high school serving the Harlem community within New York City. All potential policy alternatives proposed will be limited to the population of FDA students.

Problem Statement

In 2012, the state of New York graduated a record number of students from public high schools. While a reported 74% of 12th grade students graduated, only 33% of those students were deemed "college ready", based on student performance thresholds of the NY Regents examinations (Engage NY). The New York State Education Department (NYSED) only measures college readiness using a student's standardized test performance, while disregarding other key metrics that shape college readiness. By ignoring these metrics when formulating state education standards and assessments, it is reasonable to believe that the number of students who were not prepared for college was lower than 33%. The standard measurements of college readiness at Frederick Douglass Academy, as well as the state of New York as a whole, are not broad enough.

Background

Introduction

The "college readiness" of high school students is a term that is widely used within our secondary and post-secondary education systems, but has seemingly had little consensus on a universal definition of what being "college ready" truly entails. The principal metrics which historically dominated how college readiness has been measured has been if a high school student receives "X" grade on the ACT, SAT, state standardized test, or has a certain GPA, it will best predict their suitability graduate college. This thinking has led to the formulation of state policies and programs that ultimately set high school students up for failure, as there are many different aspects of an individual's development that must be considered and factor in to future success. Recent literature regarding has helped shed light on how we define college readiness, judge success of a "college ready" student, and what best practice metrics determine college readiness?

How does success look like for a "college ready" student?

Before understanding how college readiness can be defined, it is critical to examine how success is defined in a college ready individual. Literature varies considerably on what success is. This ranges from completing university introductory courses to graduating college. In conjunction with the Bill and Melinda Gates foundation, the Education and Policy Improvement Center (EPIC) released a 2014 report defining their interpretation of what "success" looks like in a college ready student. University of Oregon professor David Conley, an expert in this field, defines success as **"A student who can qualify for and succeed in entry-level, credit bearing courses leading to a baccalaureate degree without the need for remedial of developmental coursework"**(Conley 2012). A study conducted by Geoffrey Maruyama concluded success "**operationally as the level of preparation a student needs to enroll and succeed—without remediation—in a credit- bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program**" (Maruyama 2012). While these definitions seem relatively narrow in scope by only considering the student's first year, the intended purpose focuses on introductory courses that to increase the probability of a student graduating. By mentioning remediation, these definitions point out students who have to take special university courses to compensate for what could be a lack of math, reading, or writing. Proficiencies that are expected upon admission. Studies point out that students who engage in remedial coursework could potentially be problematic as "students who require remediation are at greater risk for dropping out of college. Those students who require a remedial class have graduation rates that range between 30 and 57 percent, depending on the type and number of remedial classes they take, while those who do not require remediation have a graduation rate of approximately 69 percent." This study has shown that students receiving remediation are at higher risk of not graduating adding further that "only 30 percent of students taking a reading remedial class eventually completed their degree program (certificate, two-year or four-year), and only 17 percent completed a bachelor's degree" (National Center for Education Statistics, 2004). While an overwhelming

amount of literature cites graduation as success, these definitions offer greater specificity while keeping the ultimate goal of graduation in mind.

Why not determine college readiness through high school GPA?

The most common way to define college readiness has been by placing a certain threshold on a student's high school GPA or performance on standardized tests (SAT, ACT, etc.) Predicting a student's college readiness based on their current academic performance in high school could potentially be misleading due to the inherent differences in how successful one may be in a high school classroom versus a college classroom. Success in college requires a different academic skill set than in high school, as the expectations and class norms required in introductory post-secondary education are much higher. The National Research Council found "college instructor is more likely to emphasize a series of key thinking skills that students, for the most part, do not develop extensively in high school They expect students to make inferences, interpret results, analyze conflicting explanations of phenomena, support arguments with evidence, solve complex problems that have no obvious answer, reach conclusions, offer explanations, conduct research, engage in the give-and-take of ideas, and generally think deeply about what they are being taught" (National Research Council, 2002). Nationally, high schools have increased course standards and requirements for its students in hopes that it translates directly to college success rates. Yet since 1987, while course requirements for high school graduation have increased there has been no significant corresponding increases in the levels of college graduation (Conley 2007, 8). It ultimately comes down to difference in skills demanded of a student in a high school setting versus a college setting to be successful.

What are the "non-cognitive" skills associated with college readiness?

It is well documented that the development of specific "non-cognitive" skills are crucial for an individual's college success. University of Oregon professor, David Conley, has been a lead contributor to the study of college readiness. Conley believes there to be four main "keys" that students must master at some level to be deemed college ready. These include: Cognitive Strategies, Learning Skills and Techniques, Content Knowledge, Transition Knowledge and Skills.

Cognitive Strategies pertain to a student's ability to think and problem solve. Conley believes that the most important facets of cognitive strategies a student can develop are:

1. *Intellectual openness:* The student possesses curiosity and a thirst for deeper understanding, questions the views of others when those views are not logically supported, accepts constructive criticism, and changes personal views if warranted by the evidence
2. *Inquisitiveness:* The student engages in active inquiry and dialogue about subject matter and research questions and seeks evidence to defend arguments, explanations, or lines of reasoning
3. *Analysis:* The student identifies and evaluates data, material, and sources for quality of content, validity, credibility, and relevance

4. *Reasoning, argumentation, proof:* The student constructs well-reasoned arguments or proofs to explain phenomena or issues; utilizes recognized forms of reasoning to construct an argument and defend a point of view or conclusion
5. *Problem solving:* The student develops and applies multiple strategies to solve routine problems, generate strategies to solve non- routine problems, and applies methods of problem solving to complex problems requiring method-based problem solving.

Conley finds the strategies listed above so important due to the implication that a student is intentionally changing their way of processing information to produce a more thoughtful answer (Conley 2007).

Content Knowledge refers to the main principles and ideas learned through the core subjects taught in high schools. The content knowledge generally refers to key skills gained in Mathematics and English courses. Specifically, there is a emphasis put on the fundamentals of algebra and a students' ability to solve multistep problems using conventional methods that are the foundation for many introductory college math courses.

Content knowledge is most frequently assessed area when determining a student's college readiness. The current measurement is through standardized testing (ACT/SAT) and end-of-course evaluations. The end-of-course evaluations have shown to be effective an measure to ensure that students are tested solely on information they need to know. Potential pitfalls include teachers "teaching for the test", meaning that they focus on teaching only content knowledge while neglecting to develop the whole student.

Academic Behavior refers to a student's ownership of their learning experience, as well as specific learning techniques the student employs in their learning process. The literature emphasizes that when student transitions from a high school environment to an independent learning environment, such as college, success could become more dependent on academic behaviors than anything else. When a student is placed in control of their own learning process, variables such as a student's motivation, goal-setting, help seeking, time-management, critical reading, and memorization techniques become challenged in ways not previously required in high school (Conley 2007). These skills are referred to as "non-cognitive" or "soft skills". Almost all academic literature stresses "non-cognitive" skills in some form, but expert William Sedlacek includes external societal components into the development of "non-cognitive" skills amongst students. He breaks these non-cognitive attributes into eight different variables being: Positive self-concept, realistic self-appraisal, successfully handling the system (racism), preference for long-term goals, availability of strong support person, leadership experience, community involvement, knowledge acquired in a field. A few key characteristics to highlight and flesh out more within the Sedlacek eight variables is "Successfully handling the system (racism)" and "Accessibility of a Support Person". Sedlacek defined successfully handling the system as "exhibit a realistic view of the system on the basis of personal experience of racism; committed to improving the existing system; take an assertive approach to dealing with existing wrongs by not assuming a hostile perspective on society, while being able to handle a discriminatory system"(Sedlacek 2004). Accessibility of a support person is the presence of a network or support group an individual can turn to for advice or in the case of an emergency.

A student's academic behavior is arguably the most difficult aspect of college readiness to measure. One of the most effective way to attempt to quantify a student's academic behavior is through questionnaire assessments asking students to self-identify learning techniques they currently use. Then evaluating off a baseline previously set by the test administrators, each question answer will have a certain value attached to it allowing a quantifiable score to be obtained upon completion.

Contextual Skills and Awareness relate to the student's familiarity and knowledge about the college process, and ultimately knowledge of opportunities as they transition to life after high school. Having "college knowledge" refers to a student's expectations and familiarity with the college process as a whole, including the application process, financial aid qualification, awareness of attainable schools and their standards. Measuring contextual skills and awareness is relatively straightforward, as a simple questionnaire will let you know if a student has considerable "college knowledge" or not. Studies show this has the greatest impact on minority and low-income students. The lack of contextual skills and awareness creates what some call the "achievement gap."

A study conducted by economists Christopher Avery and Thomas Kane compared college application rates of Boston Public schools and suburban high schools. What they found was that just over 50% of students in the urban Boston public school system received applications from a four-year school they were interested in attending, but only 18% of those students ultimately ended up applying to that four-year institution that fall. When comparing this to suburban high schools where 91% of students received college applications with nearly 41% of the sample applying to a four-year institution that fall (C. Avery and T. K. Kane 2004). There are three potential hypotheses for why that may be. The first theorized that the aspiration and exposure to four-year institutions may not be as prevalent in low income urban students. If a student comes from a poor urban socio-economic background there is a much higher possibility that individuals in their family and community have likely not attended a four-year institution subsequently creates a perpetual cycle where the students do not consider attending a four-year university. Sociologists have found a correlation that as the selectiveness of the college increases, the likelihood of graduation increases. The second involves the difficulty with the financial aid application, as completing financial aid forms can be a daunting task for an 18-year-old student. Additionally they are sometimes not aware that financial resources and assistance is available. The last barrier was actually getting students to apply. Students were not fully aware of the opportunities available to them from a higher education standpoint (Roderick, Nagaoka, and Coca 2009).

Frederick Douglass Academy Overview

Quick Facts:

- Enrollment: **1,409** students (6th-12th grade)
  - Typically **300** students per grade (9th-12th grade)
  - **54%** male, **46%** female
  - **98%** minority student body
    - **71%** African-American, **23%** Asian, **2%** White

Data are based on the 2015-2016 school year.

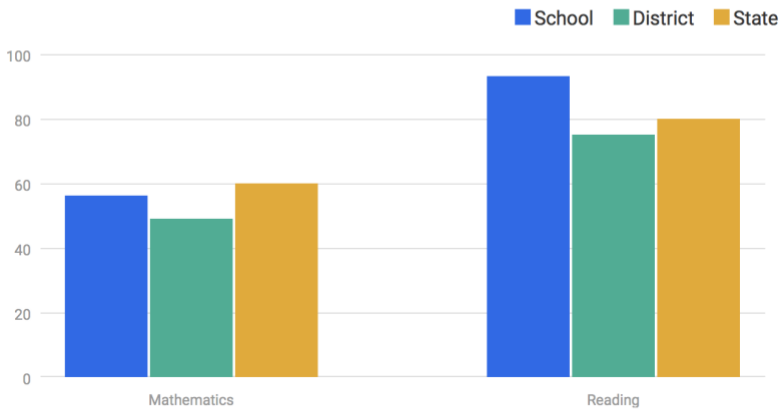
- **84** full-time teachers
- **66%** of students eligible for Free Lunch Program
- **36%** of student body participates in AP courses
  - 69% AP participant passing rate
- **74%** graduation rate

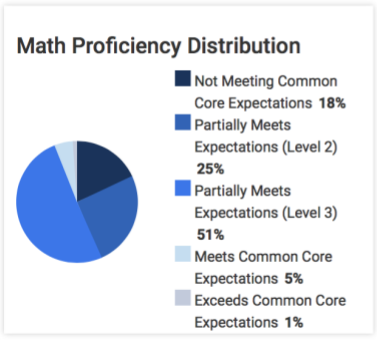
(U.S. News 2018)

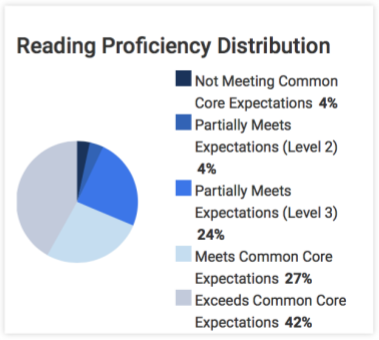
Subject Proficiency Testing

New York administered the Regents Examinations to high school students. These figures display how well the school as a whole performed in reading and mathematics.

Subject Proficiency







- *Proficiency is determined by student results on the school's Regents Examinations.*

Graduation Requirements:

- Requirements set forth by NYSED (see “New York State Overview” for specifics)

FDA Stance on College Readiness:

“First and foremost, college preparation is the primary focus for all students at FDA. In addition to traditional courses, FDA offers a wide variety of Advanced Placement (AP) classes in all subject areas, including history, literature, foreign language, mathematics, and the sciences. Students who take and score highly on AP exams earn credits toward colleges and universities. During the application process, this shows potential colleges and universities how prepared a student is for the rigors of college level coursework.”

“Advanced Placement Courses are the #1 determining factor in predicting the success of high school students once they enter the college of their choice. What Advanced Placement classes provide for a high school student is a rigorous classroom environment and college level material, with the added bonus of an end of the year examination that can earn the a high school student potential college credit based on their performance on an AP exam.”

(FDA Homepage)

State of New York "College Readiness" Overview

State Definition: The state of New York has no official statewide standard that defines "college readiness". The state of New York has developed the Aspiration Performance Measures (ASM), which evaluates the college readiness of students based on their performance on the Regents assessments. To be considered ready for college a student ready a student must:

1. **Graduate with a Local, Regents, or Regents with Advanced Designation diploma,**
2. **Earn a 75 or greater on their English Language Arts Regents examination, AND**
3. **Earn an 80 or greater on a Mathematics Regents examination**

State Assessments:

1. Regents Examinations are statewide standardized tests taken at the high school. In accordance with the national initiative Common Core, students are tested on and must pass five core subject areas: English Language Arts, math, science, social studies, and an additional test in any State approved subject. These tests serve as an end-of-course examination to evaluate student performance and comprehension of the core ideas and skills taught in a particular course (Engage NY).
    a. *Regents Diploma* - a score of 65 or better is required on these Regents exams:
    Comprehensive English
    Mathematics (Any one)
    Global History
    US History
    Science (Any one)
    Language other than English
    b. Regent Diploma with Distinction
        i. All the same as minimum requirement, except:
            1. Score a 65 or better on all three Math exams
            2. Score a 65 or better on a both a physical and life science exam
    c. Regent Diploma meeting ASM standards
        i. Explained in "State Definition" section
2. **Comments**: The Regents exams do not include "non-cognitive" or an academic behavioral assessment. These have been shown to be vital in a student being deemed college ready. The Regents examinations solely evaluates and determines college readiness based on academic performance. In a report published by the New York State Education Department, the importance of "non-cognitive" skills, socio-emotional knowledge, as well as other non-academic indicators that are crucial to college readiness. There is no mention of state performed assessments for these fields.

Statistics of State Students Designated College Ready:

New York's 4-year high school graduation rate is 74% for All Students. However, the percent graduating college and career ready is significantly lower.

June 2012 Graduation Rate

Graduation under Current Requirements

	% Graduating
All Students	74.0
American Indian	58.5
Asian/Pacific Islander	81.6
Black	58.1
Hispanic	57.8
White	85.7
English Language Learners	34.3
Students with Disabilities	44.7

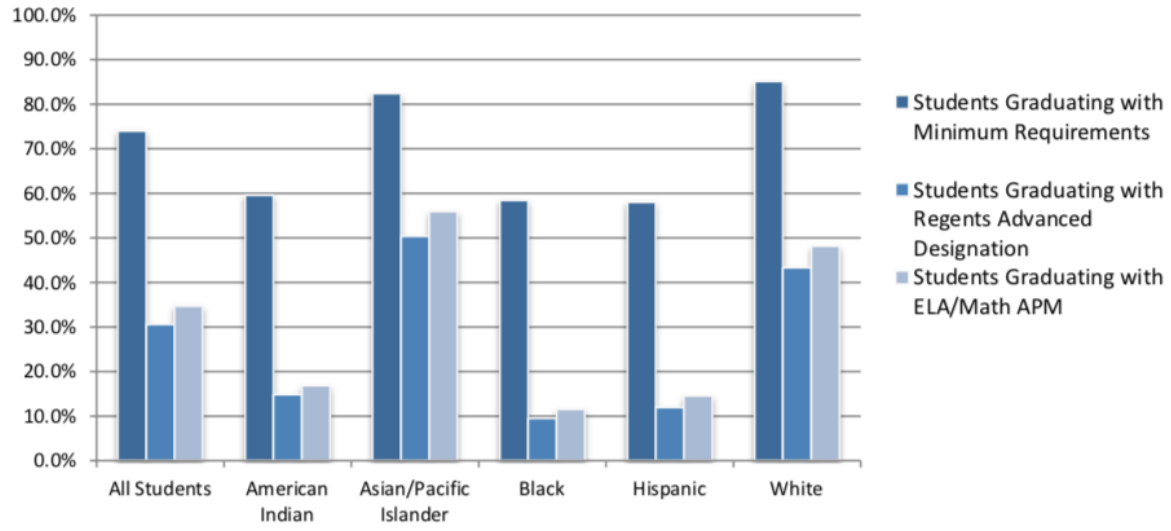
Calculated College and Career Ready*

	% Graduating
All Students	35.3
American Indian	18.8
Asian/Pacific Islander	56.5
Black	12.5
Hispanic	15.7
White	48.5
English Language Learners	7.3
Students with Disabilities	4.9

*Students graduating with at least a score of 75 on Regents English and 80 on a Math Regents, which correlates with success in first-year college courses.

Source: NYSED Office of Information and Reporting Services

Table 1: June 2011 Graduation Rate with Aspirational Performance Measures



Source: NYSED Office of Information and Reporting Services

[4] NYSED Administrative Data for all Public, Independent and Proprietary 2- and 4-year Institutions of Higher Education

(Engage NY)

Collection of Data

The New York State Education Department has a P-20 longitudinal data system in place that tracks a student's path through elementary school, high school, and then eventually college or the workforce. There are no high school feedback report requirements from this data. A high school feedback report is a report detailing how a graduating high school class progresses through postsecondary education. For instance, if they graduated or needed to take remedial course upon arrival at the college (DQC).

Evaluative Criteria

The criteria below will serve as the evaluative measures each policy option will be examined through. The goal is to provide estimates on the outcomes of each policy option to better guide Frederick Douglas Academy in measuring college readiness amongst its students. This will allow for a more thorough evaluation of the school system as a whole in addition to beginning a conversation around the implementation of an effective policy to address college readiness amongst students.

Cost

-What is the total cost for a given policy alternative? The criterion will be quantified in dollars using estimates from similar policies and programs from other states and organizations. The cost will be primarily divided into three main categories:

- *Monetary Cost*
    - Monetary cost will assess costs to construct the initial college readiness metric. These include research and development, training of school districts official, etc.
- *Social Cost*
    - Social cost will assess the length of time each policy option might require from the students and faculty of FDA. The amount of time shall be quantified by the number of hours required by an individual student and faculty member involved.

Generating Student Feedback

-This criterion will evaluate a policy alternative's ability to provide feedback of student college readiness, with a goal to generate conversation of how to address any potential deficiencies amongst FDA students. The criteria shall evaluate whether the policy provides *strong, moderate, or minimal* feedback centered on two groups of students:

- Current Students: Will the feedback from a proposed policy generate conversation to help students who are currently at FDA?
- Future Students: Will the feedback from a proposed policy generate conversation to help students who will attend FDA in the future?

Feasibility

-The criterion will evaluate the feasibility of implementing the proposed policy alternative as a "proof of concept" within Frederick Douglass Academy. Feasibility will consider major stakeholders at the state level, primarily the New York State Education Department, and at the local level with school staff at FDA. The criterion will also take into consideration the current national initiative, *Common Core*, which New York currently basis its college readiness standards on through the Regents examinations. The criterion shall be evaluated on whether the policy will receive *uncertain, likely, or unlikely* support.

Effectiveness

-The criterion will evaluate how effective a proposed policy alternative is at measuring college readiness in New York high school students. Its "effectiveness" will be defined by the

policy's ability to measure the four key components of college readiness. These four key components of college readiness will be weighed equally under four separate subcategories. The criterion will be evaluated on whether the policy measures each subcategory as *strong, moderate, minimal, or non-existent*. These four subcategories, compiled with example indicators, will be used to evaluate the subcategories:

- Cognitive Strategies
    - Abilities to formulate hypothesis and developing problem-solving strategies, identify sources and collecting information, analyze findings for these conflicting viewpoints, organize and construct work products in a variety of formats, and monitor the precision of all work produced.
- Academic Knowledge and Skills
    - Reading and writing skills and strategies sufficient to process the full range of textual materials commonly encountered in entry-level college courses, and to respond successfully to the written assignments commonly required in such courses
    - Comfort with a range of numeric concepts and principles sufficient to take at least one introductory level college course that could conceivably lead toward a major that requires additional proficiency in mathematics
    - A strong grounding in the knowledge base that underlies the key concepts of the core academic disciplines as evidenced by the ability to use the knowledge to solve novel problems within a subject area, and to demonstrate an understanding of how experts in the subject area think.
- Academic Behavior
    - Ability to assess objectively one's level of competence in a subject and to devise plans to complete course requirements in a timely fashion and with a high degree of quality
    - Ability to study independently and with a study group on a complex assignment requiring extensive out-of-class preparation that extends over a reasonably long period of time
    - Ability to interact successfully with a wide range of faculty, staff, and students, including among them many who come from different backgrounds and hold points of view different from the student's
- Contextual Skills and Awareness
    - Locate websites that contain information on colleges, the admissions process, and financial aid, and navigate such websites successfully, comparing the programs and requirements of several colleges and assessing the financial requirements and feasibility of attending each
    - Present an accurate self-assessment of readiness for college by analyzing and citing evidence from classroom work and assignments, grades, courses taken, national and state exams taken, and a personal assessment of maturity and self-discipline

(18, Conley 2007)

Policy Alternative 1:

Implement a schoolwide assessment measuring "non-cognitive" skills

This policy alternative calls for the implementation of a schoolwide assessment focusing on measuring the "non-cognitive" skills and academic behaviors that predict whether an individual is college ready. The current state assessments, the Regents exams, are New York's only indicator to gauge such readiness. The Regents exams are end-of-course assessments that solely measure college readiness based on academic performance and core course knowledge. This policy option would require the New York State Education Department (NYSED) to create a statewide assessment measuring "non-cognitive" factors, academic behaviors, "college knowledge"[1] of a student as a tool to better gauge the student's college readiness. Frederick Douglas Academy will administer the test during 9th period, of a student's freshman year. The "non-cognitive" assessment will serve as a supplemental tool to the Regents exams in giving a full picture on a student's abilities.

Currently the state of New York determines whether a student is college ready based on their performance on the English and Math Regents exam, calling this the Aspirations Performance Measure (APM). The student's performance on the new "non-cognitive" assessment will be included as another benchmark that students will need to hit. Additionally, the assessment will also provide opportunities in which the school itself might be evaluated, thus potentially leading to a radical change in the curriculum/resources offered.

There are no states in the U.S. that require specific testing to measure "non-cognitive" factors, academic behaviors, and "college knowledge". The NYSED and FDA would not need to spend valuable time and resources creating their own assessment, but rather implement a notable preexisting assessment, the ACT Tessera. The ACT Tessera is a 20-30 minute online assessment, consisting of three testing measurements to evaluate 5 social and emotional skills that predict college success: Conscientiousness(Grit), Agreeableness(Teamwork), Emotional Stability(Resilience), Openness (Curiosity), Extraversion (Leadership) (ACT.org). Further information on specific testing measurements can be found in Appendix A. The test will be taken during the first quarter of a student's 9th grade year, during the FDA 9th period. The students will then depart home during Dismissal 2. Once the test is complete, a personal feedback report will be generated within an hour, reporting an individual student's performance on the assessment and this will be made available to their designated school counselor. An institutional report will be provided to schools summarizing the aggregated data. These are useful as this will allow schools to compare their results, break down data into various subgroups results schools (e.g., males vs. females), and in tracking a school's overall assessment performance over time.

[1] "College Knowledge"- the access and familiarity a student has with the information, resources, and skills necessary to effectively navigate the college admission process.

Cost

Monetary Cost: An ACT Tessera tests costs $10 per student (Bates). Multiplying this cost by an average of 300 students in the 9th grade, the cost to purchase the test comes out to be **$3,000**. We can assume that the classroom facilities and computers necessary to take the test will not require additional costs.

Social Cost: The main social costs centers around the time spent taking the test on the student's part, and the time required by FDA faculty to administrator the test. The opportunity cost of having students take the ACT Tessera is that it requires them to spend 30 minutes during the 9th period that they would otherwise spend receiving extra tutoring or coursework help. The ACT Tessera recommends one supervisor per 25 students, meaning that 12 faculty members would be required to be present during the testing process. According to the ACT Teserra Handbook, the faculty would be required to spend one hour in training on how to administer the test and then would need to spend one hour during test day actually administering the test. With the average secondary school teacher in New York City making approximately $38/hour, we can safely assume that these two hours spent with the test amongst the 12 faculty members would theoretically cost the school **$912** (Ciaran 2018).

Generating Student Feedback

Current Students: The feedback generated for current students is **moderate**. From the perspective of identifying deficiencies in particular students early on in their high school career is very strong. Within 10 minutes of assessment completion guidance counselors, parents, and teachers will be aware of what the child needs to work on and can begin to address these needs in an informal manner. They can now begin to generate conversation that can lead to formidable change in school curriculum. School district officials will have data to address concerns within the student population. However, the changes may take 2-3 years to materialize and implemented leaving the current students largely unable to receive the benefits.

Future Students: The feedback generated for future students (10 years) is **strong**. With nearly 10 years of data measuring the "non-cognitive" or SEL skills of the students at Frederick Douglass Academy, one can deduce there to be efficient formidable change made within school curriculum to address the needs of the future students. Not only will a student receive an immediate individual report describing their specific needs, there will be 10 years worth of data for school officials to evaluate and plan college readiness initiatives accordingly.

Feasibility

The feasibility for this policy alternative is **likely**. What's promising is that the NYSED has shown a recent interest in evaluating the learning standards in their public schools with the Next Generation Learning Standards, largely replacing Common Core, which may serve well for providing additional evaluative tools to the New York school system. With FDA serving as a "proof of concept" and the costs being relatively low the disincentives for pursuing this option is very low. The process of the students themselves taking the assessment does not take away other learning opportunities with 9th period being primarily used for students to receive assistance with academic content they are struggling with.

Effectiveness

The effectiveness of administering the ACT Tessera to all FDA 9th grade students is **moderate**. The criteria's four key components of college readiness, indicated by Professor David Conley, are mostly addressed in the ACT Tessera's testing methods. The ACT Tessera excels in most of the subcategories including Contextual Skills and Awareness, Academic Behavior, and Contextual Skills and Awareness. The assessment quantifies a student's ability level in these three subcategories, thus giving a school the direct measurement on how the student compares to the standards set forth by Professor Conley. The reason that the policy alternative does not reach the designation of "strong" is that it does not address any of the performance indicators associated with Academic Knowledge and Skills.

Policy Alternative 2:

Publish a high school feedback report including postsecondary performance indicators

This policy option calls for the state of New York, more specifically Frederick Douglass Academy, to publicly publish a high school feedback report that indicates student success in postsecondary education using indicators such as first year remediation[2], early postsecondary success, and postsecondary completion. The first step in this policy option is for the state of New York to officially establish a definition for what a college ready student is. While 33 states have adopted a statewide definition, New York has not. In the definition, NY would indicate college readiness as being able to complete introductory level courses at a university without remediation.

In 2010, the Department of Education mandated that all states report the data of all students obtaining a diploma. The state of NY currently uses the P-20 data system to keep track of student data and reports this data to the Dept. of Education. This policy alternative calls for an expansion of the P-20 data system to report college readiness indicators of students who move on to postsecondary education (DQC). These indicators, now monitored, would directly measure the college readiness from a retrospective view on how a state's cohort of graduates met the statewide definition. To obtain this information New York would take an approach similar to Vermont, and gather information from the National Student Clearinghouse (NSC) and their StudentTracker system. The NSC collects enrollment data from ~98% of institutions that participate in Title IX student loans. The NSC StudentTracker allows schools to receive benchmark data on student's enrollment, persistence, and graduation from college in an accessible report that meets FERPA qualifications (NCS).

The final aspect of this policy alternative is to publish a public high school feedback report on the NYSED website. Currently the data that the P-20 collects is only viewed by a select few lawmakers and school district officials. This policy alternative would call for the state to include a comprehensive view of Regent testing scores, high school graduation, and then the college readiness metrics determined through preexisting state assessments. A public high

[2] Definition from achieve.org

school feedback report will create transparency in Frederick Douglass Academy by immediately letting parents, teachers, and school district officials know how their specific school prepared students for postsecondary education success. This important data can be aggregated using results from the number of students that enrolled in college versus the students who persisted to graduate, indicating a lack of college readiness This intended high school feedback report will not include data on individual students, but rather the school as a whole. More information on the NCS StudentTracker can be found in Appendix B.

Cost

Monetary Cost: The monetary cost for publishing a high school feedback is virtually $0. To obtain the necessary data from the StudentTracker system, an annual fee of **$425** is needed to pay the National Student Clearinghouse (StudentTracker).

Social Costs: There is no social cost on the student population of FDA. There are social costs anticipated on the part of FDA faculty, as an increased workload will be required to from several faculty members. In particular, the faculty members that will be required to coordinate and produce the high school feedback report will be the Community Coordinator, the three employees from the College Counseling Office, and the two Computer Technology department faculty members.

Generating Student Feedback

Current Students: The feedback generated for current students is **minimal**. The alternative focuses on a retrospective view that only judges the final desired outcome of student outcome, which is graduation. Current students are not given feedback on any aspects of their social and emotional learning skills that are critical to college readiness.

Future Students: The feedback generated for future students is **moderate**. A critical advantage that this policy alternative provides is the school is now able to evaluate key data metrics of their students who enrolled in college and then the rate it against that those students who persisted to graduate. A 10 year lifespan of the NCS StudentTracker trends in college persistence rates will become apparent to school district officials, giving them clear data to make curriculum changes on moving forward.

Feasibility

The feasibility for this policy alternative is **likely**. Based on the low implementation and social cost, school officials have little reason not to purchase the NCS StudentTracker system. A potential difficulty with this option will be apprehension to publish the high school feedback report, as it will create another lens in which FDA will be judged under. While the purpose of this policy option is to create more transparency, the transparency will put FDA faculty under more pressure to reach a high standard. Regardless we see that publishing a high school feedback report has become mandatory in 33 states and having FDA publish one of their own will not be difficult to garner support.

Effectiveness

The effectiveness of FDA publishing a high school feedback report is **non-existent**. As indicated earlier, this option makes available data that implies successful college readiness through college persistence. Where this policy option falls short is that there are no measurements of any of the four main college readiness components that this criterion evaluates.

Policy Alternative 3:

Require a senior capstone project for graduation

This policy option mandates that Frederick Douglas require a student capstone project as a graduation requirement in public schools. The capstone project will serve as a performance-based assessment that will take place over the course of a student's 12th grade year. The project will require a very similar format to the capstone project Weymouth Public High School (MA). The project will consist of four major components:

1. The student must write a 3-5 page research paper from a list of school approved topics.
2. The student must create a presentation product based on what they have written in the research paper (ex. PowerPoint, Poster, Presentation Notes).
3. The student must create a portfolio of their work for the project. Including methods used for research (12 hours of work outside of school required), outline of main paper ideas, and a written summary of the process used to write the paper.
4. The student must then present on the topic to a review board consisting of a high school teacher (serving as a project supervisor) and another approved faculty member from the school.

During the first half of the 12th grade year (Sept.-Dec.) students would engage in components 1-3. More specifically, the students will be assigned an FDA teacher as a "project supervisor" that they will meet with once a week for the first half of the year. The project supervisor will serve as a guiding resource for the student. An administrator shall sign off on the work log the student will keep to make sure they are achieving work requirements. The supervisor and the student will meet once a week during 9th period for 20 minutes. The final portion of the capstone project will conclude with the student presenting on their capstone topic, which will be graded by the project supervisor and another faculty member.

This project will serve as a collection of evidence demonstrating a student's ability to complete a range of academic requirements to a certain degree of performance that will indicate the college readiness skills necessary to succeed in an introductory postsecondary course. Frederick Douglass Academy will need to create a "Capstone Committee" that will be responsible for creating specified grading metrics for the project, ensuring that all capstone's run to specifications, and will be responsible for conducting the capstone training for faculty members. This training will not be a one-time occurrence, but rather an annual training to update teachers

on benchmarks to evaluate the students work. The teachers will meet periodically throughout the first half of the year to ensure that the students are on the right track to effectively finish the project and meet all requirements. The format at Weymouth Public High School (MA), and Middletown Public High School (RI) shall serve as examples for instituting a capstone project (Hanover Research).

Cost

Monetary Costs: The direct monetary costs are extremely low for this policy alternative. While difficult to quantify, the main cost of this option comes through opportunity costs associated with diverting resources during the school day.

Social Costs: The potential social cost is quite large as it adds significant workload to FDA teachers and requires a great deal of extracurricular attention from the students. With 9th period being 47 minutes long, four days a week, we can assume amongst the 300 students we would need approximately 40 faculty members to participate (8 students per faculty member) (FDA 2019). This means that 40 teachers would be required to give up their 9th period availability, which would close a lot of opportunities for students to receive extra help and tutoring they would need in course subjects. Teachers are required to be in school for 9th period, but quantifying the opportunity cost in dollars, based on a rough estimate of the required hours spent by faculty members on the project, we can approximate this option would cost the school **$72,960**. This number was calculated incorporating the average hourly teacher wages, the 12 weeks required by teachers to assist on this project, and the 40 overall faculty members this would require.

Generating Student Feedback

Current Students: The feedback generated for current students is **moderate**. The format of this alternative allows for student to receive individualized feedback on their specific strengths and weaknesses, specifically in regards to their social and emotional learning skills. A drawback of this option is that the student does not receive this feedback until the final half of their senior year. By the time a student is a senior, many opportunities to address potential deficiencies with their “non-cognitive” skills have past.

Future Students: The feedback generated for future students is **strong**. Judging the alternative through a 10-year lifespan we can anticipate that this method will produce valuable data trends that will shape conversations that could lead to potential curriculum changes that can be implemented for future students in 2029. The project will then allow students to compare their score on the assessment to past trends from FDA students. Since this project would be occurring on an annual basis, we can assume that a constant cycle will form allowing the school curriculum to be constantly evaluated based off the performance of the senior class.

Feasibility

The feasibility for this policy alternative is **unlikely**. Requiring a capstone project from each student in the senior class will require a considerable amount of time from nearly half of the FDA teaching faculty. Instead of teachers being available to assist at risk students from all grades during 9th period, a teacher will have their time consumed by a greater workload

exclusively due to the capstone project. A major unknown is if the students will actually complete the project as intended. The project requires a considerable amount of work outside of the school day. This could prove problematic amongst a student population that is already below the national average in terms of graduation rate. This leads to another question of what actually requires the students to complete a capstone project. A popular solution would be to make it a graduation requirement, but doing this could lead to a lower graduation percentage, which school district officials may not be in favor of. An encouraging aspect in regards to feasibility is the numerous school districts around the country who require a capstone project, and can serve as a "blueprint" for FDA if this route is taken.

Effectiveness

The effectiveness of requiring a senior capstone project is **strong**. In regards to the four main components of college readiness, this option excels in all four components. The project forces the student to demonstrate almost all the skills, indicated by Conley, to complete the capstone. In terms of measuring a student's strengths and weaknesses in the four main areas, the rubrics in which each teacher will use to judge a student's project will primarily include indicators from all four college readiness categories.

Outcomes Matrix

This matrix provides a summary of each alternative's scoring on the evaluative criteria:

Evaluation Criteria	**Impact Category**	**Policy Alternatives**		
		"Non-Cognitive" Skill Assessment	**Publish HS Feedback Report**	**Implement Senior Capstone Project**
Cost	Monetary Cost	*$3000*	*$412*	*N/A*
	Social Cost	*$912*	*N/A*	*$72960*
Generating Student Feedback	Current Student	*Moderate*	*Minimal*	*Moderate*
	Future Students	*Strong*	*Moderate*	*Strong*
Feasibility	Support from NYSED	*Likely*	*Likely*	*Unlikely*
Effectiveness		*Moderate*	*Non-Existent*	*Strong*
	Cognitive Strategies	*x*		*x*
	Academic Knowledge			*x*
	Academic Behaviour	*x*		*x*
	Contextual Skills and Awareness	*x*		*x*

Recommendation

Alternative #1: Frederick Douglass Academy should implement a schoolwide assessment of focusing on the measurement of "non-cognitive" skills. Specifically, FDA should make the ACT Tessera the assessment of choice for its students.

Based on my analysis, college readiness could best be measured within the FDA high school student population by requiring that the ACT Tessera be taken by every 9th grade student. Evaluating each option's weight on the basis of overall cost of the option to FDA, the feasibility, and whether the option could effectively measure college readiness skills as identified by David Conley. Alternative #1 was found to have a very modest cost, while proving to be feasible in the sense due to the insignificant workload added to FDA faculty involved in addition to only requiring 20-30 minutes of a student's time within the structure of the school day. The ACT Tessera was designed to provide quantifiable data on social and emotional learning skills amongst students and how it pertains to college readiness, something that literature has shown to be overlooked in our secondary schooling system. A major concern in evaluating this alternative was the measurement of Academic Knowledge and Skills under the "effectiveness" criteria. The ACT Tessera is intended to serve as one of many tools at the school's disposal when painting a broader picture of a student's college readiness. The state of New York Regents' exams already provide a fairly comprehensive insight of a student's Academic Knowledge and Skills based on their scores. With the Regents' exams already in place, supplementing the ACT Tessera will provide a better picture of a given student's college readiness.

Alternative #2, publishing a public high school feedback report, was not recommended because it does not provide measurements on "non-cognitive" skills amongst a student population. As a stand-alone option, a retrospective view on college persistence does not provide FDA school officials with compelling enough evidence to generate conversation on how the high school curriculum promotes or obstructs a student's progression to be college ready. The alternative should be given consideration as a supplementary tool for FDA to use, as the cost is relatively minimal to the school.

Alternative #3, requiring a senior capstone project, was not recommended due to the large costs in diverting resources and faculty attention. The alternative excels in providing an effective individualized measurement of a student's college readiness, but the feasibility of implementing the alternative is quite low. The teachers would be given much greater workload, and would be pulled away from being able to provide extra coursework help and tutoring of all students during 9th period.

Considerations for Implementation

Implementing this alternative should be as relatively simple as ACT providing a comprehensive administrative and student test taking guide, laying out step by step on how to begin both processes. The first step that FDA needs to take is nominate one Testing Coordinator. The testing coordinator will be responsible for contacting the New York ACT representative to coordinate testing fees and figuring out an optimal date. Next, a team of team supervisors should be assembled the summer before testing. ACT recommends 1 supervisor per 25 students which will require around 12 supervisors for the 300 students (ACT Tessera). The testing supervisors can be any FDA faculty available during 9th period, as there is no specialized knowledge needed by supervisors. From here the testing team will commence in a short training, following the instructions laid out in the “ACT Tessera Administrative Manual”.

Considerations for implementation include the grade in which students are given the assessment. Literature states that 11th grade may be the most advantageous time to test students on their social and emotional learning skills due to the extended exposure they have had in a high school curriculum (Conley 2012). Keeping this in mind I recommend that FDA still administer the test during a student’s 9th grade year. Several reasons for this include receiving feedback on the students early in their high school career will provide ample time for FDA faculty and NYC School Chancellor Carranza to implement policies to help address deficiencies in the school curriculum to benefit current students. The next reason is the structure of 9th period can be largely used for students repeating classes. By taking the assessment freshman year the student has a much greater chance of not having commitments not allowing them to take the test.

The next consideration for implementation is to create an action plan once the results are known. The most important purpose of receiving these results is to generate conversations on how to best address SEL skill problems within the FDA community. I recommend that the results go directly to a student’s school counselor and parents so they can work with the student on a more immediate and individual basis. More so, I recommend FDA Principal Fullerton and the three College Counseling Office staff members schedule a meeting with NYC School Chancellor Carranza and his staff to report the ACT Tessera data and begin the process of discussing potential solutions.

Appendix A: An Overview of the ACT Tessera

ACT Tessera is an online assessment that measures 5 Social and Emotional Learning Skills and Climate

- Conscientiousness(Grit)
- Agreeableness(Teamwork)
- Emotional Stability(Resilience)
- Openness (Curiosity)
- Extraversion (Leadership)
- Climate

TESSERA CONSTRUCT/ FACET	BIG FIVE CONSTRUCT/ FACET	DEFINITION
N/A	CONSCIENTIOUSNESS	Scores on this dimension are a function of personal goal setting, trying to succeed at those goals, and striving to be competent in school work (and related) activities. Scores also reflect dependability, commitment to doing school work (and related activities) correctly and carefully, and being attentive to details.
ORGANIZATION/ RESPONSIBILITY	DEPENDABILITY/ ATTENTION TO DETAIL	Facet of conscientiousness that reflects the extent that a student is reliable, responsible, and dependable, pays attention to detail, and fulfills school (and related) obligations.
TENACITY/GRIT	ACHIEVEMENT-EFFORT/PERSISTENCE	Facet of conscientiousness that reflects the extent that a student expends effort, and establishes and maintains personally challenging achievement goals, in the process exerting effort towards task mastery in different subject domains.
TEAMWORK/ COOPERATION	AGREEABLENESS	Scores on this dimension are a function of a student being pleasant, cooperative, sensitive to others, easy to get along with, and having a preference for associating with other members of the school community, broadly writ.
COMPOSURE/ RESILIENCE	EMOTIONAL STABILITY	Scores on this dimension are a function of a student's poise, flexibility, and able to cope with pressure, stress, criticism, setbacks, personal and school-related problems.
CURIOSITY/ INGENUITY	OPENNESS	Scores on this dimension are a function of being open-minded, thoughtful, enjoying the process of thinking about and solving school problems, interested in different types of students and their points of view; accepting of differences in fellow students, and being innovative and creative in one's school (and extra-curricular) work.
LEADERSHIP/ COMMUNICATION STYLE	EXTRAVERSION	Scores on this dimension are a function of being assertive, persuasive, enthusiastic, and independent. To an extent they also reflect a student's level of sociability.

Two forms of feedback are provided:

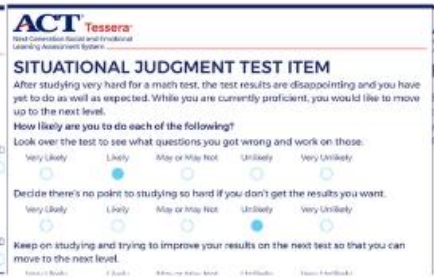
An **institutional report** is generated which provides schools with aggregated data. These are useful in allowing schools to compare their results with those of other schools, in comparing subgroup results within schools (e.g., males vs. females), and in tracking a school's overall assessment performance over time.

A **personalized feedback report**. This report can be viewed by the student, teachers, and parents. Feedback is provided at the level of the behavior. For example, "You scored lower than most of your peers on attention to detail. This is something that might be reflected in your not studying in an environment that is conducive to studying or in..." *Later versions of the assessment system will also include a unique teacher report and a unique parent report. (Per ACT)*

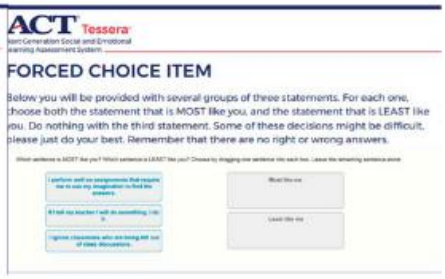
Testing Methods

Each facet will be measured with three methods:

Self-report items, which will be answered on Like-type rating scales, typically from "Strongly Disagree" to "Strongly Agree."



Situational judgment items that are text-based, perhaps with limited use of simplegraphics, will involve presenting students with scenarios and five possible responses to those scenarios. Ratings of effectiveness for the five response options will range from"Very Ineffective" (1) to "Very Effective" (5).



The forced-choice items,10 which involves selecting one self-report item from three of the Big Five domains (broadly writ) and forming triplets, as shown below.

Appendix B: National Student Clearinghouse StudentTracker Information

StudentTracker® for High Schools

Accurately determine the college and career readiness of your students

StudentTracker for High Schools is the nation's most powerful tool for benchmarking how students enroll, persist, and graduate college and improving the way you prepare future students for higher education.

Who Can Benefit from StudentTracker?

- **School administrators:** Receive benchmark data to consistently monitor how your graduates enroll, persist, and complete college
- **School counselors:** Obtain qualitative knowledge to better support students higher education goals
- **Researchers:** Combine student-level detail reports with your own data to create longitudinal studies on academic program success
- **Policymakers:** Assess and improve policy decisions on college readiness in your district or state

How You Can Use StudentTracker

- Perform trend analyses on up to eight years of historic graduate records
- Support Every Student Succeeds Act (ESSA) reporting requirements, including data for private and out-of-state institutions
- Spot enrollment trends for in-/out-of-state, two-/four-year, and private/public colleges
- Develop benchmarking from student-level data as a baseline for longitudinal studies

Easy-to-Use, Accurate, and Affordable

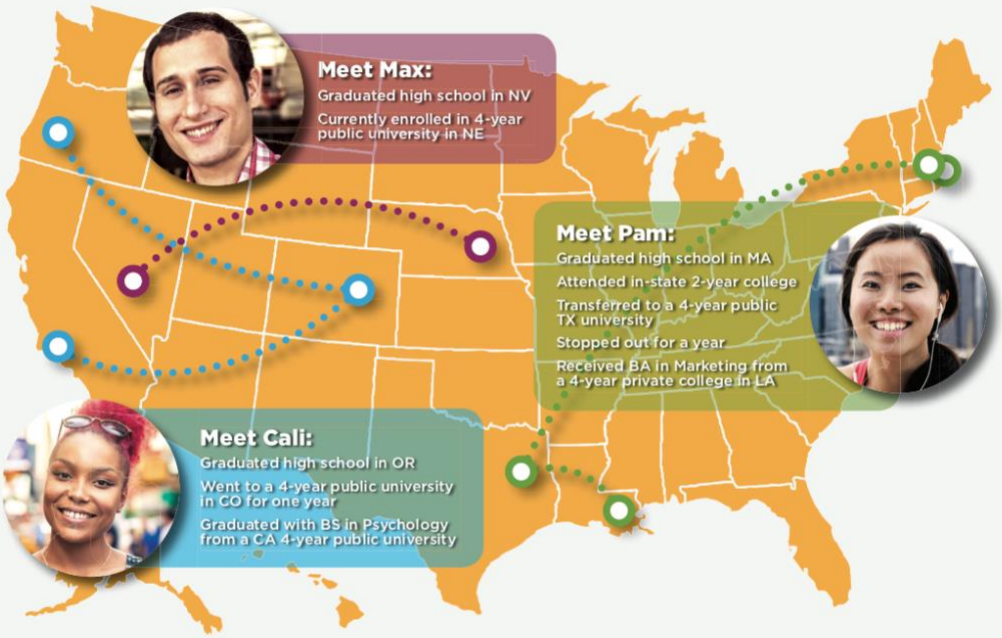
StudentTracker provides the reliable results you need for **just $425 per year** per high school.

To sign up or learn more, talk to your Clearinghouse rep, visit studentclearinghouse.org/reps

NATIONAL STUDENT CLEARINGHOUSE®

Only StudentTracker for High Schools Lets You Track Student Postsecondary Outcomes Nationwide

With StudentTracker for High Schools you can match your data against the National Student Clearinghouse's enrollment and degree records from more than 3,600 institutions enrolling **over 98 percent of U.S. public and private postsecondary students**.



What StudentTracker for High Schools Includes

- Annual StudentTracker report containing aggregate and detail data
- Access to updated reports three times a year (fall, spring and summer)
- Ability to instantly generate ready-to-share charts and data using data elements, such as gender, race, and economic disadvantage

FAMILY EDUCATIONAL RIGHTS & PRIVACY ACT iKeepSafe FERPA

CALIFORNIA STUDENT PRIVACY CERTIFIED iKeepSafe CSPC

Awarded to StudentTracker for High Schools by iKeepSafe, the leading student data privacy and digital safety nonprofit.

To sign up or learn more, talk to your Clearinghouse rep, visit studentclearinghouse.org/reps

NATIONAL STUDENT CLEARINGHOUSE

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References

Achieve.org. (2013). CREATING A P-20 CONTINUUM OF ACTIONABLE ACADEMIC INDICATORS OF STUDENT READINESS. Retrieved from https://www.achieve.org/files/StudentReadinessIndicators.pdf

ACT.org. (n.d.). ACT Engage® Grades 10–12 Domains and Scales Overview. Retrieved from http://www.act.org/content/dam/act/unsecured/documents/Engage1012Handout.pdf

ACT Tessera - Social and Emotional Learning. (n.d.). Retrieved from http://www.act.org/content/act/en/products-and-services/act-tessera/reporting.html

ACT Tessera Price Estimate [E-mail to Lakisha Bates]. (2019, March 26).

A College Preparatory School. (n.d.). Retrieved April 28, 2019, from https://www.fda1.org/

Baum, S. & Ma, J. (2007). Education pays: The benefits of higher education for individuals and society. The College Board: New York.

Bureau of Labor Statistics. (n.d.). Occupational Outlook Handbook, 2008–2009 Edition. Retrieved from http://www.bls.gov/oco/oco2003.htm.

Ciaran, J. (2018, July 01). Hourly Wages for Teachers. Retrieved from https://work.chron.com/hourly-wages-teachers-2044.html

CMS. (n.d.). Retrieved from http://schools.cms.k12.nc.us/independenceHS/Pages/graduation_project.aspx

Conley, & T., D. (2012, May 02). A Complete Definition of College and Career Readiness. Retrieved from https://eric.ed.gov/?id=ED537876

Conley, D. (2007). Redefining College Readiness. Retrieved from https://files.eric.ed.gov/fulltext/ED539251.pdf.

C. Avery and T. K. Kane, "Student Perceptions of College Opportunities: The Boston COACH Program," in College Choices: The Economics of Where to Go, When to Go, and How to Pay for It, edited by Caroline M. Hoxby (University of Chicago Press, 2004).

Data Quality Campaign (DQC). (n.d.). Providing High School Feedback Using Data to Improve Students' College and Career Readiness. Retrieved from https://2pido73em67o3eytaq1cp8au-wpengine.netdna-ssl.com/wp-content/uploads/2016/03/HS-Feedback-DFA2013.pdf.

Engage NY. (2015, July). College & Career Readiness Update on the Regents Reform Agenda[Scholarly project]. Retrieved from https://www.regents.nysed.gov/common/regents/files/meetings/Jul 2015/715fullboardmonampresentation.pdf

FDA. (2018). 2018-2019 Bell Schedule. Retrieved April 28, 2019, from http://www.fda1.org/wp-content/uploads/2018/08/BELL-SCHEDULE-2018-2019.pdf

Hanover Research. (2013, August). Best Practices in Capstone Projects Prepared for Northwest Independent School District. Retrieved from https://www.nisdtx.org/UserFiles/Servers/Server_232117/File/Departments/Research/District Research Projects/BestPracticesinCapstoneProjects_NorthwestIndependentSchoolDistrict.pdf

How Does Frederick Douglass Academy Rank Among America's Best High Schools? (n.d.). Retrieved from https://www.usnews.com/education/best-high-schools/new-york/districts/new-york-city-public-schools/frederick-douglass-academy-13142

Maruyama, G. (2012). Assessing College Readiness. Educational Researcher,41(7), 252-261. doi:10.3102/0013189x12455095

Middletown High School Capstone Project Manual 2018-2019. (2018). Retrieved from https://www.mpsri.net/uploaded/schools/mhs/academics/2018-2019_Capstone_Manual.pdf

National Center for Education Statistics. (2004). The condition of education 2004. Retrieved from http://nces.ed.gov/pubs2004/2004077.pdf.

National Research Council (2002) Learning and understanding: Improving advanced study of mathematics and science in U.S. High schools. Washington, DC: National Academy Press

NCS. (n.d.). StudentTracker for High Schools. Retrieved April 28, 2019, from http://studentclearinghouse.info/onestop/wp-content/uploads/STHS-Flyer.pdf

Roderick, M., Nagaoka, J., & Coca, V. (2009). College Readiness for All: The Challenge for Urban High Schools. Retrieved February 1, 2019, from https://pdfs.semanticscholar.org/ccfa/b1481cc6b1cf9134364bc74fd78ecd8cb2b6.pdf

Sedlacek, W.T. (2004). Beyond the big test: Noncognitive assessment in higher education. San Francisco: Jossey-Bass.

StudentTracker. (n.d.). Retrieved from https://studentclearinghouse.org/colleges/studenttracker/