



# EVIDENCE-BASED IMPACT STUDY

**College and Career Readiness** is quickly becoming one of the most important tenets of 21st-Century K-12 Education; yet research and National Benchmark data show that the vast majority of students are underserved when it comes to career readiness. Furthermore, students are largely still failing to backwards-map academic and course plans to the college and career pathways they wish to pursue. The following document outlines our Impact Study and analysis highlighting the comparative impact MajorClarity, Inc. has on both of these outcomes for students and districts.



## THE FUTURE OF CAREER & COLLEGE READINESS

### Sources:

[1] Bromberg, M., & Theokas, C. (2019, June 03). Meandering Toward Graduation: Transcript Outcomes of High School Graduates. Retrieved July 01, 2020, from <https://edtrust.org/resource/meandering-toward-graduation/>

[2] Learning from Student Voice: College and Career Readiness. (2016). Retrieved July 01, 2020, from <https://youthtruthsurvey.org/college-and-career-readiness/>

[3] Sperandei S. Understanding logistic regression analysis. *Biochem Medica* 2014;24:12–8. 10.11613/BM.2014.003. Retrieved July 01, 2020 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3936971/>

# MajorClarity



# IMPACT STUDY OVERVIEW

MajorClarity, Inc. is a provider of career exploration and academic planning software and services to K-12 school districts. Our core platform was built through a yearlong research pilot with New York City Department of Education's iZone Department and has since grown to serve thousands of schools across the nation. This Impact Study examines a partnership between MajorClarity, Inc. and a school district that outlines implementation methodology, strategy, and the respective data outcomes from said partnership.

The quantitative analysis examines current literature and research on the extent that K-12 students are selecting career-aligned plans of study and then presents data analysis on the relationship between students completing one of MajorClarity's interactive career test-drives and selecting a career-aligned plan of study. It presents regression analysis on said data to verify the statistical significance of said findings.

The qualitative analysis includes interviews with and quotations from key personnel at the district, as well as outlines of how MajorClarity partnered with the district and was integrated into the district.

The high level results and findings of the Impact Study are as follows:

- The Impact Study included 2,214 students (N = 2,214).
- MajorClarity's test-drives lead to a 189% increase in the odds of a student selecting, or having selected, a career aligned plan of study.
- The 95% Confidence Interval is well above the null threshold, which is used as a proxy for statistical significance in Logistic Regression.

## Sources:

[1] Bromberg, M., & Theokas, C. (2019, June 03). Meandering Toward Graduation: Transcript Outcomes of High School Graduates. Retrieved July 01, 2020, from <https://edtrust.org/resource/meandering-toward-graduation/>

[2] Learning from Student Voice: College and Career Readiness. (2016). Retrieved July 01, 2020, from <https://youthtruthsurvey.org/college-and-career-readiness/>

[3] Sperandei S. Understanding logistic regression analysis. *Biochem Medica* 2014;24:12–8. 10.11613/BM.2014.003. Retrieved July 01, 2020 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3936971/>

# RESEARCH METHODOLOGY

## SUMMARY OF CURRENT RESEARCH:

Current research has consistently found that student outcomes are lacking when it comes to both career exposure / readiness and academic-alignment to desired career pathways. An industry-leading report from Ed Trust found that only 21% of students complete a career-aligned course sequence **[1]** -- 8% from completing a college & career ready sequence and 13% from completing a career ready only sequence.

Furthermore, a national survey of 165,000 high school students found only a minority of students receive adequate support in career exploration as they plan out their futures. Only 36% of students reported receiving support services regarding "Future Career Possibilities" and only 46% of students reported receiving assistance in identifying which career paths match their interests or abilities. This research and the accompanying data served as the basis for the data MajorClarity collected and analyzed for this Impact Study to determine impact to maintain consistency for comparisons. **[2]**

Lastly, MajorClarity was initially developed through a yearlong research pilot with New York City Department of Education's iZone Department and a research partnership with The Center of Children and Technology, a leading EdTech research firm. Many of our early findings identified that over-reliance on assessments and text-based content was inhibiting effective Career & College Readiness programming. The key to impactful career exploration and academic planning technology is consistent with the findings of Dr. Royce Kimmons and his offering of the PICRAT model. Technology and content that forces students to interact and create is much more impactful on student outcomes.

# RESEARCH METHODOLOGY

## DATA ANALYSIS AND REGRESSION METHODOLOGY:

Based on these national findings and the PICRAT model, this research seeks to identify the impact MajorClarity's interactive platform and partnership has on helping students to select a career-aligned plan of study. MajorClarity is the only academic planning platform that offers students interactive career "test-drives" and we believe this is an essential catalyst in driving Career & College Readiness outcomes. The study was conducted across **2,214 students (N = 2,214)**.

Completion of a "test-drive" was the independent variable for this Impact Study to measure its impact on students selecting career aligned plans of study. The dependent variable, and outcome being analyzed, was whether or not the student selected a career aligned plan of study. The control variable was accessing MajorClarity's platform to ensure that all students not only had access to the platform, but also participated in the platform to better isolate the impact that "test-drives" have on student outcomes.

Another key priority was controlling for a range of variables that can greatly impact educational outcome research including, but not limited to, socioeconomic status, school quality, access to technology, and more specifically access to high-quality, interactive career exploration content. To control for these variables, we analyzed data within a district with only one middle school and one high school to as best as possible ensure all students had relatively consistent experiences and equivalent access regarding the aforementioned variables.

Since the variable of students selecting a pathway or not is both binary and categorical, traditional linear-regression analysis is not effective in determining statistical significance. Therefore, to ensure statistical significance, we performed a Logistic Regression on the data set, which is used when the dependent variable is categorical. Within Logistic Regressions, the Odds Ratio is the measure of association between an outcome (students selecting a career aligned plan of study) and an exposure or variable (test-drives). If an Odds Ratio's 95% Confidence Interval overlaps with the null value (in this case 1), it is considered to not be significant. The Odds Ratio's 95% Confidence Interval is often used as a proxy for statistical significance within Logistic Regressions if it does not overlap the null value.

# SUMMARY OF FINDINGS

**94% of students** that completed a test-drive selected a career aligned plan of study within the academic planning section. Comparatively, only 63% of students that had not completed at least one test-drive selected a career aligned plan of study. The outcomes of this data was very encouraging, but as previously mentioned, it is important to also examine this data within the context of regression analysis and statistical significance.

As previously mentioned, due to the nature of a binary and categorical variable, a Logistic Regression analysis was conducted on this data. The key contextual variable for understanding the results of Logistic Regressions is not R-Squared, but rather the Odds Ratio. As one scholar writes, in a paper entitled *Understanding Logistic Regression Analysis*, the purpose of this analysis is to "obtain odds ratio in the presence of more than one explanatory variable."

The Odds Ratio represents the constant effect that a predictor variable (in this case, students completing career path test-drives) will have on the likelihood that an outcome will occur (in this case, students will select and build out a career aligned plan of study). An Odds Ratio of 1 indicates there is no increase or decrease in the likelihood of an outcome from a given variable; further, if an Odd Ratio has 1 within its 95% confidence interval it is not statistically significant.

## Sources:

[1] Bromberg, M., & Theokas, C. (2019, June 03). Meandering Toward Graduation: Transcript Outcomes of High School Graduates. Retrieved July 01, 2020, from <https://edtrust.org/resource/meandering-toward-graduation/>

[2] Learning from Student Voice: College and Career Readiness. (2016). Retrieved July 01, 2020, from <https://youthtruthsurvey.org/college-and-career-readiness/>

[3] Sperandei S. Understanding logistic regression analysis. *Biochem Medica* 2014;24:12–8. 10.11613/BM.2014.003. Retrieved July 01, 2020 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3936971/>

# SUMMARY OF FINDINGS

The Odds Ratio for this data was 2.890, which means that there is a **189% increase** in the odds of students selecting, or having selected, a career aligned pathway if they have completed a career path test-drive. The 95% Confidence Interval for the data's Odds Ratio is 2.398 to 3.486, meaning that we can say with 95% confidence that the true Odds Ratio for this data falls between 2.398 and 3.486, which is well above the null threshold and represents a **140% to 249%** increase in the likelihood of a student selecting, or having selected, a career aligned pathway if they complete, or have completed, a career path test-drive.

Another important factor to point out is that the P-value for test-drives is well below .001, indicating that the variable is highly important. The rest of the Logistic Regression analysis is shown here:

	<u>Coefficients</u>	<u>Standard Error</u>	<u>P-value</u>	<u>Odds Ratio</u>	<u>95% Confidence Interval</u>	
<b>Intercept</b>	0.553422317	0.05456	3.56E-24	1.739	1.563	1.935
<b>Test drives completed</b>	1.061595517	0.09550	1.04E-28	2.891	2.397	3.486

In summation:

- The Impact Study included 2,214 students (N = 2,214).
- MajorClarity's test-drives lead to a 189% increase in the odds of a student selecting, or having selected, a career aligned plan of study.
- The 95% Confidence Interval is well above the null threshold, which is used as a proxy for statistical significance in Logistic Regression.

## Sources:

[1] Bromberg, M., & Theokas, C. (2019, June 03). Meandering Toward Graduation: Transcript Outcomes of High School Graduates. Retrieved July 01, 2020, from <https://edtrust.org/resource/meandering-toward-graduation/>

[2] Learning from Student Voice: College and Career Readiness. (2016). Retrieved July 01, 2020, from <https://youthtruthsurvey.org/college-and-career-readiness/>

[3] Sperandei S. Understanding logistic regression analysis. Biochem Medica 2014;24:12–8. 10.11613/BM.2014.003. Retrieved July 01, 2020 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3936971/>



# ADDITIONAL FINDINGS

Lastly, we wanted to highlight how MajorClarity's other platform engagement data from this Impact Study compared to the National Benchmarks found in our review of national research and literature:

**1.)**

**36% of high school students receive support services for "Future Career Possibilities"**

**96% of ALL High School students in this Impact Study used MajorClarity.**



**2.)**

**46% of high school students are helped in identifying careers that match interests**

**92% of ALL High School students in this Impact Study used MajorClarity's career assessment to see recommendations based on personality and interests.**



**3.)**

**21% of students complete a career-ready course sequence**

**79% of ALL High School students in our Impact Study selected a career-aligned course plan of study.**



# The Path Forward

*A revamped Career and Technical Education program at Dinwiddie Public Schools is empowering students to take ownership of their futures.*



Students spend “A Day in the Life of an Electric Lineman” with Southside Electric Cooperative employees.

*Photos courtesy of Dinwiddie Public Schools*

On the first day of school, Carly Woolfolk always dreaded asking her students one question: “Why are you taking this class?”

“For elective classes like CTE, most students will say something like: ‘my friend told me she was taking this class,’ or ‘you’re my favorite teacher,’” says Woolfolk, now the Director of Secondary Education and CTE at Dinwiddie Public Schools in Virginia. “Even worse: ‘I didn’t know what else to take, and my counselor put me in here.’”



Woolfolk found those answers frustrating. They showed that the students didn't understand how each class fit into a plan to meet their career goals—and they certainly didn't feel in charge of their own academic and career development.

### 3 proven techniques for better CTE results

#### **Exploration**

Administer assessments so students can understand themselves, then link their strengths to careers

#### **Personalization**

Customize career paths to make sure CTE programs are relevant for students and schools

#### **Adaptation**

Use data to understand and respond to student needs

In Virginia, as in most states, the Department of Education requires that each student “have a personal learning plan and course of study that aligns with the student’s academic and career goals.” Woolfolk believed that it wasn’t enough to just create a generic plan and check the necessary box—each student’s academic career plan (ACP) needed to matter.

In 2017, she set out to create an ACP program that would have real impact. She called it the #CTE4ALL initiative. The ACPs she envisioned would actually be used as real, living tools. Classes would match up with student interests,

***She set out to create an ACP program that would have real impact. The ACPs she envisioned would actually be used to guide students.***

and if a class was added to their plan, then they would take that class. Above all, they would encourage students to take active ownership over their futures.

In 2019, after two years, Woolfolk’s plan is getting results—and recognition. The Virginia School Boards Association recently named Dinwiddie County Public Schools the winner of the Excellence in Workforce Readiness Award, specifically calling out the #CTE4ALL program. Here’s how Woolfolk and her team made it happen.

#### **Define Interests**

The first step in getting students to create an ACP was to help them understand the range of possibilities. The challenge was twofold: get students to understand their own personal character traits, then get them to explore a variety of careers. Only then could students choose careers that matched with their strengths and interests.

“The truth is,” says Woolfolk, “most students choose a job they’re interested in based on either a ‘dream job’ (like professional sports or movie star) or something they have experience with—often what their mom or dad does for a living. Few students, even the older ones, know their own strengths and personality traits—much less how those traits might align with various career pathways.”

Dinwiddie chose the MajorClarity platform to help ensure that all its student would be career- or college-ready when they graduated. Self-assessment and career explorations are two of the great strengths of MajorClarity. When students first log on, they are prompted to complete a self-assessment that determines their personality type and learning style. Then, it nudges them to begin exploring career clusters.

Woolfolk began to see students delve into career simulations and activities on the platform. They marked their favorite career areas at first, then later began to choose specific goals to pursue. The results revealed true student interests—miles beyond the simple “what do you want to be when you grow up?” approach.

***Few students, even the older ones, know their own strengths and personality traits—much less how those traits might align with various career pathways.*** ”

Critically, student engagement didn't end with exploration. Based on the choices that students have made, the MajorClarity platform lays out the skills and certifications that students will need to achieve their goals. Soon, Dinwiddie students started to create their own ACPs inside the platform.

#### **Create a custom process**

As students began to create their own ACPs, Woolfolk set out to match

those ACPs up to school offerings. She uploaded all their academic planning functions and course records into the MajorClarity platform. Now, students didn't just see the skills they'd need for their goals, they saw the specific classes offered at their school that matched those goals.



Dinwiddie High School students shadowing animal control officers on the job.

Woolfolk created a “core template” in MajorClarity: an ACP with grade level guides for a student to meet basic graduation requirements. Then, she adapted that template to create ACPs for every career pathway in which Dinwiddie offered classes. As each student completed their ACP, it was reviewed by a counselor and marked as approved in the platform.

#### ***She set a schedule with milestones in MajorClarity:***

- **Grade 7:** Students take a Career Investigations course—by the end of the course they have selected a pathway of interest to pursue.
- **Grade 8:** Students review their pathway and select the specific courses that follow their career goals for grades 9-12.

- **Grades 9-12:** Advisors and counselors use the information in MajorClarity as the basis for their discussion of career paths and college interest with each individual student.

### Get parents involved

Dinwiddie was intentional about getting all teachers and counselors on board with MajorClarity—providing trainings and creating clear expectations of how staff would use the platform. Equally important, however, was reaching out to parents.



Dinwiddie's career exploration programs bring together students and local industry professionals.

Woolfolk knew that it would be powerful to have parents involved as part of the process. "Unfortunately," she says, "the majority of parents had no clue that there was a plan of study for their child." She wanted to change that.

While MajorClarity will automatically send student ACPs to their guardian email on file, Woolfolk wanted to go further. She organized a series of

MajorClarity parent sessions, where she and her team walked through the platform and encouraged parents to log-on with their children. At one event, "Parents were texting their kids about the platform while we were still in the session," says Woolfolk. "They were saying 'wow! I wish I had this when I was a kid!'"

### Refine

As more students used the MajorClarity platform, there was more data available to Woolfolk. Looking at student interests and activity, she could better guide instruction, allocate resources, and organize events.

Woolfolk set up an annual course audit to make sure that everything Dinwiddie CTE offered matched up with the needs expressed by students in the MajorClarity platform. Each year, she could add or drop courses according to what mattered to students.

***She even used the data to help convince administration to fund the teacher as he earned a new endorsement.***

Woolfolk began to use the MajorClarity data as evidence to earn funding for new teacher certifications. When she saw an increased interest in the building trades, she secured money for one teacher's OSHA certification that allowed him to teach additional

construction classes. She helped a chemistry teacher add an endorsement to expand the school's range of health and medical sciences offerings. She discovered that many students wanted to pursue early childhood education, so she set up a bus service to transport them to the appropriate course at the local community college.

***After two years of adaptations drawn from data in the MajorClarity platform, enrollment in Dinwiddie's CTE courses, regional CTE center, and community college partnership classes is at an all-time high.***


Woolfolk sends out a student survey inside the platform in the fall to help drive decisions for the next year. By winter break she has the CTE schedule for the following year completed, and counselors can meet with students early to get numbers for Dinwiddie's master schedule. After two years of adaptations drawn from

***It's very rewarding to look into a student's schedule and see a career goal, an ACP, and classes that lead up to that goal.*** ”

data in the MajorClarity platform, enrollment in Dinwiddie's CTE courses, regional CTE center, and community college partnership classes is at an all-time high.

#### **What's next**

In 2022, Dinwiddie will graduate its first class of seniors who have used the MajorClarity platform for all four years of high school, and expects to see rising numbers of completed CTE diplomas. The district continues to refine its CTE offerings.

Woolfolk has started to see the changes on a personal level as well. "It's very rewarding to look into a student's schedule and see a career goal, an ACP, and classes that lead up to that goal," she says. "It's refreshing—and exciting—to know that these students have a plan that aligns with their future careers. They have a path forward." 

Interested in what MajorClarity can do for your school? **Get in touch.**