How Can the Cambridge Public Schools Better Utilize their Resources to Provide More Effective Support for their Current Student Population?

An Honors Thesis for the Department of Education

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Abstract: *Through qualitative analysis of interviews with educational professionals and quantitative analysis examining demographic and academic data, I discuss the ways resources are currently being used in the Cambridge Public School system and propose strategic changes that would improve its overall effectiveness. Although I look at ways the Cambridge Public Schools can better support their student body as a whole, I focus my attention on how to provide necessary resources for disadvantaged populations. Through my data analysis, it is clear that Black, Hispanic/Latinx and low-income students are statistically more likely to score lower academically, and therefore, a key section of my research is discussing ways to better support these students. In addition to this topic, the other two key areas I delve into are bettering mental health resources and addressing the issues of the MCAS.*

How Can the Cambridge Public Schools Better Utilize their Resources to Provide More Effective Support for their Current Student Population?

"The changes [that will improve the Cambridge Public Schools] are more on the edges, you know, changes that aren't just cost changes…and those kinds of decisions [are] the ones where we're actually going to do something different." - Claire Spinner, Chief Financial Officer of the Cambridge Public Schools

Although current polling shows that United States constituents think that education is the top priority to spend tax-payer money on (nearly tied with healthcare), the federal government spends significantly less on education than in other areas. For example, the education budget is just 11% of the total federal budget, with 5 other categories receiving a higher percentage.[1] From there, I formulated a question: To what extent does budget size have an effect on the academic success of students? With this question in mind, I conducted an independent study of public school districts in Massachusetts to learn more about the relationship between money and education.

Background from the Independent Study:

Before I officially began conducting the research for my thesis, I completed an independent study through the Education department at Tufts University, and through this study, I drew conclusions that I wanted to research in further depth. For my independent study, I wanted to examine in greater detail the ways in which money influences education. First, I wanted to

[1] *Fiscal Data explains federal spending*. Federal Spending | U.S. Treasury Fiscal Data. (n.d.). Retrieved March 30, 2023, from https://fiscaldata.treasury.gov/americas-finance-guide/federal-spending/

examine if there is a correlation between per-pupil expenditure and how successful students will be. This correlation may be the reason behind major discrepancies in academic success both amongst districts throughout a state, as well as from state to state. When looking at per pupil expenditure in Massachusetts, there is an extremely large range on how much each district spends on a student. In 2019, the district with the lowest per pupil expenditure, Dracut, was only $11,382 per student, while the district with the highest per pupil expenditure, Provincetown, was $45,464 per student. Therefore, Provincetown is spending about four times the amount of money per pupil than Dracut. [2]

From there, I compared the per pupil expenditure costs of Massachusetts as a whole to another state—Alabama. The reason I chose Alabama is because the average per pupil expenditure in Alabama (approximately $10,000) is lower than the average per pupil expenditure in the United States (approximately $13,000). Although there is a large range of per pupil expenditure between districts within Massachusetts, the average is $16,000 dollars, which is therefore higher than the national average.[3] Discrepancies in per pupil expenditure result in a multitude of inequities, one of which is academic performance. In order to see how per pupil expenditure affects academic performance, I looked to the NAEP which is the National Assessment of Educational Progress. It is similar to a statewide standardized test, except it is administered on a federal level. When looking at the results, there is a correlation between per pupil expenditure and NAEP scores. When looking at states that have a lower than average per pupil cost, such as Alabama, they consistently perform below the proficient level while states

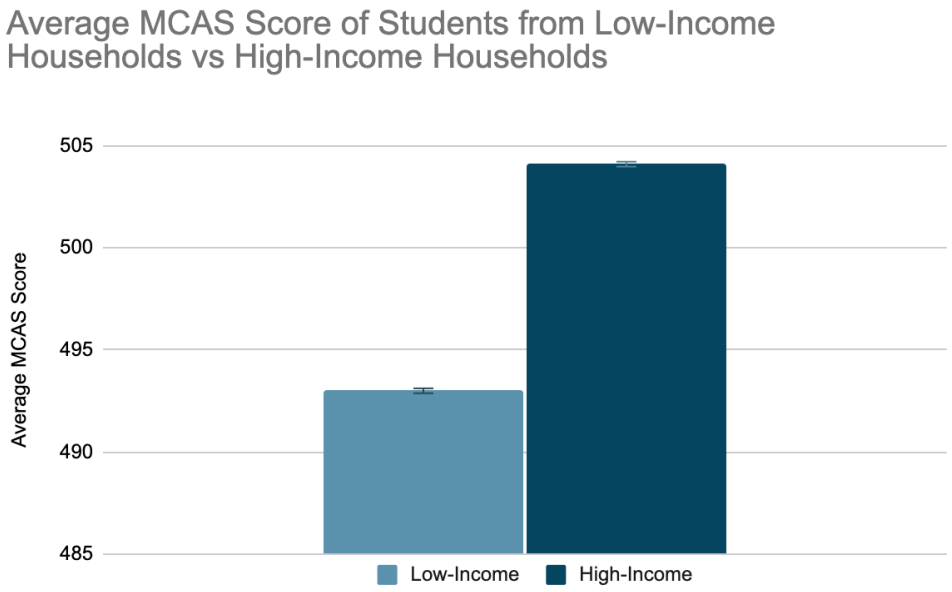
[2] *Per pupil expenditures, all funds*. Massachusetts Department Of Elementary And Secondary Education - Per Pupil Expenditures Statewide Report. (n.d.). Retrieved May 3, 2022, from https://profiles.doe.mass.edu/statereport/ppx.aspx
[3] Per pupil spending by state 2022. (n.d.). Retrieved May 3, 2022, from https://worldpopulationreview.com/state-rankings/per-pupil-spending-by-state

that have a higher than average per pupil cost such as Massachusetts consistently rank above proficient.[4]

In addition to per pupil expenditure, household income affects academic performance as well, even to a much greater extent. I began this research when I discovered that when comparing per pupil expenditure and standardized test scores in Massachusetts, there seemed to be outliers—one of which was the Cambridge Public Schools which has one of the highest per pupil expenditures but one of the lowest standardized test score averages. From there, I wanted to get to the bottom of this discrepancy. I determined that coming from a low-income household has a great effect on how students perform on standardized testing through comparing the mean scores for each group(see graph 1). Through analysis of student data throughout Massachusetts, it was determined that within a ninety nine percent confidence interval, income status has an effect on MCAS score; specifically, being of low-income status correlates with performing lower on this standardized test.[5] It is clear that students coming from high income homes consistently perform better than students from low income homes, and with Cambridge having one of the largest low-income populations in Massachusetts, this fact explained the discrepancy I mentioned previously.

[4] *National Center for Education Statistics (NCES) home page, part of the U.S. Department of Education*. National Center for Education Statistics (NCES) Home Page, a part of the U.S. Department of Education. (n.d.). Retrieved May 3, 2022, from https://nces.ed.gov/

[5] Massachusetts Department of Elementary and Secondary Education. (n.d.). *MCAS results*. MCAS Results - Massachusetts Comprehensive Assessment System. Retrieved May 3, 2022, from https://www.doe.mass.edu/mcas/results.html



Graph 1: This graph shows the average MCAS score of students from low-income households and from high-income households. From these averages, it can be said with 99 percent confidence that MCAS score and income status are correlated.

I came to the conclusion that budget size can have a slight correlation with academic success (an example being Alabama vs. Massachusetts) although the correlation between districts in Massachusetts was not found to be statistically significant. However, my study led me to an even more interesting discovery— the correlation between the number of low income students and the level of academic success IS statistically significant.

My next question became clear: why exactly does coming from a low income home affect academic performance? From here, I generated multiple hypotheses, with the first of these being a lack of proper nutrition. Nutrition is key to being able to focus on school and academics. The second hypothesis was that these students face a lack of access to basic educational resources such as outside tutoring, adequate school supplies, and an environment conducive to studying at home. Lastly, the third hypothesis was a lack of access to organized extracurricular activities. For many public schools, extracurriculars, including sports and clubs, come at an extra price that many students cannot afford, and much research has been done to show that

extracurriculars have a strong effect on academic performance due to both physical and mental health reasons.

How my Independent Study Led me to the Cambridge Public Schools

I took the ideas generated at the conclusion of my independent study and used them as a starting framework for my thesis. The Cambridge Public Schools district has a highly above average per pupil expenditure, but at the same time, the academic success of their students (as rated through an analysis of MCAS scores) is about average.[6] Therefore, not having enough funding was clearly not the reason for the standardized testing scores. I wanted to explore what other reasons could be affecting the academic success rate. From the conclusions drawn from my independent study, I hypothesized that the fact that there is a large population of low-income students that attend the Cambridge Public Schools affected student scores. From there, I began my thesis: I would analyze what the CPS budget was being spent on and determine in what ways the funds were having a positive impact and what ways the funds might be better utilized. Although my research looked at a variety of potential factors, due to my hypothesis, I focused on how the budget was affecting CPS's low income student population.

Although the main research question for my thesis was how the Cambridge Public Schools could more effectively use their resources to better support their entire community and was not solely directed at how to better support low-income students, I found that the topics of my hypotheses, as well as other topics I discovered through my qualitative research interviewing education professionals (see research procedure), would help the school community as a whole

[6] Massachusetts Department of Elementary and Secondary Education. (n.d.). *2021 district report card*. School and District Report Cards - Massachusetts Department of Elementary and Secondary Education. Retrieved March 30, 2023, from https://reportcards.doe.mass.edu/2021/DistrictReportcard/00490000

while also directly benefiting low-income students.

To go back to my original question that began this research- to what extent does budget size have an effect on the academic success of students? I discovered that the more important question to be asking, and the question that subsequently fueled my thesis, is: in what ways can a budget be better utilized to support its school community, and ultimately, its students' academic success?

Why is this Question Important?

I believe that those like me who are involved/interested in education policy, or policy in general, tend to have the opinion that we can simply "throw money" at a problem. I want to challenge that concept- many of the individuals I interviewed relayed a comment along the lines of, "we have more money than we know what to do with," and I believe having the resources but not properly using them can have an abundance of harmful repercussions. Those can range from as simple as wasting the taxpayers' money to as complex as an entire community not prospering to their fullest potential. I believe the size of a school district's budget can impact the success of its members; however, we need to develop a better understanding of the best ways to properly and most successfully use this funding in order to make the greatest use out of each dollar.

Research Procedures:

For my thesis, I conducted a combination of qualitative and quantitative research in order to examine different aspects of my topic. In order to conduct my research, I obtained permission from the Cambridge Public Schools and gained approval both to interview educators as well as

to gain access to data sets. The specifics of my qualitative and quantitative research practices are outlined below.

Qualitative Research

For my qualitative research, I conducted approximately one hour long virtual interviews with a variety of professionals in the education field in Cambridge. Those I interviewed are as follows: Claire Spinner (*Chief Financial Advisor, the Cambridge Public Schools*), Fred Fantini (*Member, Cambridge School Committee*), Julie Craven (*Principal, Rindge Avenue Upper School*), Damon Smith (*Principal, Cambridge Rindge and Latin School*), Heidi Cook (*Principal, Baldwin Elementary School*), Daniel Monohan (*President, Cambridge Education Association*), and Blaine Yesselman (*Assistant Principal, Cambridge Street Upper School*).

Those I interviewed were chosen to encompass a range of different outlooks and experiences in terms of their knowledge and involvement within the Cambridge Public School system. For each interview, I audio-recorded the conversation as well as took hand-written notes to refer back to.

The questions I asked during the interviews were put into six main subcategories—"Background," "Budgeting," "City of Cambridge/Rent Control," "Student Makeup," "Standardized Testing," and "Charter Schools." These questions served as a baseline to guide our conversations. In some cases, we did not discuss every question explicitly and/or new questions were brought up throughout. The outlining questions are below:

<u>Background</u>

What is your title/ role at CPS?

How long have you had your current position?

What previous education-related positions have you held?

Budgeting

Who is involved in the decision making?

Who has the most influence?

Which areas have the largest budgets; which have the smallest budgets?

How has the overall budget changed over time?

How has the funding of specific areas changed over time? (Are there departments that get substantially more/less funding in recent years than before?)

How are meals budgeted? How do free/reduced lunches get weighted in the process?

Why do you think they prioritize ____ departments while budgeting? Do you agree with these prioritizations? Do you think something should be funded more than it is?

Do you think your budget is big enough?

Are extracurriculars fully funded? If not, is there financial aid for low-income students to participate?

Do you offer free academic, food, and/ or extracurricular programs in the Summer?

Do test score results affect the following year's budget?

Are after school programs budgeted by town? How much goes toward it?

City of Cambridge/ Rent Control

Does Cambridge have rent control?

How are rising rent costs affecting your budget size?

In your opinion, what is the general opinion of the city of Cambridge in terms of the school budget? Do they vote in favor or against raising the budget? Are they active in the budgeting process?

Student Makeup

What is the student demographic makeup of CPS?

What is the socioeconomic makeup of your school?

How many students go to CPS?

Has the makeup/number of students changed over time?

Standardized Testing

What is the process of standardized testing in CPS?

Do students score well on standardized tests?

Is there a discrepancy between success on standardized testing amongst different groups of students? Do certain groups of students score generally much higher than others?

Charter Schools

What is the process of funding the charter schools? Does CPS have to contribute to that funding? In your opinion, have charter schools hindered the success of CPS?

Quantitative Research

For my quantitative research, I examined data sets that I was given access to by CPS Senior Database Administrator Eric Levy. I obtained three data sets which can be categorized as

MCAS results, Demographics, and Transcripts. These datasets were able to be cross-referenced/ cross-examined via a shared R.ID which is an identification code assigned to each student to replace their names in order to protect their anonymity.

From these data sets, I carried out three regressions to measure the effect of different independent variables on three dependent variables. The three dependent variables I used were Cumulative High School GPA, scaled English MCAS score, and scaled Mathematics MCAS score. For each of the three regressions, I tested the effect of the following independent variables: English learner status, low-income status, special education status, gender, and race. I did a regression to determine if a student being of a certain demographic would have a statistically significant effect on their GPA/ standardized testing scores. Specifically, I looked at the p-value between each dependent variable with each independent variable to determine if there was a statistically significant relationship, and if there was, to what magnitude. Furthermore, I examined the coefficients and paid close attention to their sign which determined whether there was a positive or negative relationship between the two variables. (see *Quantitative Analysis of the Effects of Different Demographic Variables on Academic Success*)

Results:

Mental Health Improvement

Introduction

From my interviews, one of the most common answers I heard when I asked for an area of the Cambridge Public Schools that needs improvement is their mental health initiatives. Due to the repetitiveness of this topic across all interviews and educators of all backgrounds, I decided to take a deep look at the way the Cambridge Public Schools is currently addressing

mental health, and from there, generate potential improvements. As quoted from the Cambridge Public Schools *FY 2022 Adopted Budget*, Superintendent Kenneth N. Salim states, "Our overarching goal for the 2021-22 school year is to help all students recover and thrive by understanding their academic and social-emotional/mental health needs following the COVID-19 pandemic and providing them with individualized multi-tiered support to accelerate recovery, progress and success." Although an overarching goal of the budget was to better address mental health, specifically due to the effects of the COVID-19 pandemic, I would argue there are further steps that could be taken through changes to future budgets.

Effects of COVID-19 on Mental Health

According to the proposed budget, some of the most prominent ways in which the Cambridge Public Schools took the initiative to combat mental health issues in the 2021-2022 school year were adding elementary school social workers and paraprofessionals, continuing to develop an expansion plan for high school wellness courses, ensuring that by the end of SY 2022 students have at least one semester in mental health awareness and suicide prevention and substance abuse prevention. Furthermore, CPS recently hired a director of emotional and social learning.[7] Although these were valiant efforts to improve addressing mental health on school campuses, the effects of the COVID-19 pandemic call for more extreme efforts.

A study conducted by the SAGE Open Medicine journal concluded that when aggregating data from several studies with 65,508 participants (ranging from 4 to 19 years of age) that researched the effects of the pandemic on mental health, it was found that "anxiety (28%), depression (23%), loneliness (5%), stress (5%), fear (5%), tension (3%), anger (3%),

[7] Tata, S. (2022, December 2). Interview with Claire Spinner. personal.

fatigue (3%), confusion (3%), and worry (3%) were the most common mental health issues reported. Children and adolescents with psychiatric and/or developmental disorders, such as severe obesity, chronic lung disease, attention deficit hyperactivity disorder, cystic fibrosis, and obsessive-compulsive disorders, were especially vulnerable to the mental health effects of the COVID-19 pandemic."[8] Furthermore, in data collected from the Center for Disease Control and Prevention, it was found that, "From March 2020 to October 2020, mental health–related emergency department visits increased 24% for children ages 5 to 11 and 31% for those ages 12 to 17 compared with 2019 emergency department visits"[9] These data clearly demonstrate the extreme effects that the COVID-19 pandemic has had on the mental health of adolescents, and as a result, it shows the need for greater intervention. The implementation of school psychologists is called for.

The Need for School Psychologists

Due to the effects described above as a result of the COVID-19 pandemic, the Cambridge Public Schools need to hire trained psychologists in order to properly address the current needs of their students. As stated on the Cambridge Public School website on the "Psychological and Counseling Services" page, current school psychologists provide consultation to administrators, general and special educators, and parents. In terms of student mental health support, schools only currently offer counselors, social workers, and paraprofessionals. [10] As interviewees reported and reiterated throughout many of my interviews, since the pandemic, students are

[8] Theberath, M., Bauer, D., Chen, W., Salinas, M., Mohabbat, A. B., Yang, J., Chon, T. Y., Bauer, B. A., & Wahner-Roedler, D. L. (2021). Effects of COVID-19 pandemic on mental health of children and adolescents: A systematic review of survey studies. *SAGE Open Medicine*, *10*. https://doi.org/10.1177/20503121221086712

[9] (Leeb, R. T., et al., *Morbidity and Mortality Weekly Report*, Vol. 69, No. 45, 2020).

[10] *Psychological and counseling services*. Cambridge Public Schools. (n.d.). Retrieved March 30, 2023, from https://www.cpsd.us/departments/office_of_student_services/overview_of_services/psychological_and_counseling_services#:~:text=School%20Psychologists%2FTeam%20Chairpersons%20provide,and%20special%20educators%2C%20and%20parents.&text=School%20Adjustment%20Counselors%2FSocial%20Workers%20are%20assigned%20to%20all%20schools,their%20IEP%20goals%20and%20objectives.

coming in with severe trauma that is not being properly addressed. These types of drastic effects need to be combated with trained psychologists who can diagnose mental disorders and offer proper treatments. As Heidi Cook, principal of the Baldwin School, discussed in my conversation with her, an increase in paraprofessionals in schools was approximately a half a million dollar expense of the Cambridge Public Schools; however, in this case, I would argue that funding should instead be put toward hiring psychologists.. Although CPS could not hire an equal number of psychologists as they do paraprofessionals with the same budgetary outlays, I believe the need for psychologists should be a priority. As stated on the website for the National Association of School Psychologists, "One in five students suffers from a mental health disorder and roughly 80 percent of children and youth who are in need of mental health services do not receive them."[11]

Many students do not have proper access to mental health resources and, as a result, are not being properly diagnosed/ receiving proper treatment; furthermore, low-income students are less likely to have the financial means to seek out out of school resources despite having more of a need for mental health treatment (see *Connection between Mental Health and Income Status*)- therefore, it is imperative that schools, such as the Cambridge Public Schools, hire trained psychologists to help properly address the health of their students.

Connection between Mental Health and Income Status

A Norwegian study, "Parental income and mental disorders in children and adolescents: prospective register-based study" published by PubMed Central Journal in 2021 discovered that,

[11] *The value of school psychologists*. National Association of School Psychologists (NASP). (n.d.). Retrieved March 30, 2023, from https://www.nasponline.org/research-and-policy/advocacy/the-value-of-school-psychologists#:~:text=They%20help%20schools%20successfully%20improve,school%2Dwide%20assessment%20and%20accountability

"In the bottom 1% of parental income, 16.9% [95% confidence interval (CI): 15.6, 18.3] of boys had a mental disorder compared with 4.1% (95% CI: 3.3, 4.8) in the top 1%. Among girls, there were 14.2% (95% CI: 12.9, 15.5) in the lowest, compared with 3.2% (95% CI: 2.5, 3.9) in the highest parental-income percentile."[12] It is important to emphasize this study was conducted in Norway where healthcare, including mental healthcare, is free for children under 18 years of age. Therefore, this information suggests the heightened need for mental health support for low income students in the United States. While low-income students in Norway may be able to access the support needed due to healthcare being free, low-income students in the United States likely do not have the financial resources to pay out of pocket for mental healthcare. Even if these students' families do have access to insurance, many insurance companies do not adequately address mental health needs because they may not provide all needed services, may only accept a small number of providers (who could be located a long distance away), and may have a waiting period before clients are able to receive services.[13] Therefore, these effects would negatively impact both the student as well as their family. It is crucial that a school district supports all of their students, but especially true for those who are extremely at-risk for mental health disorders. Their mental health needs to be done through proper in-school mental care.

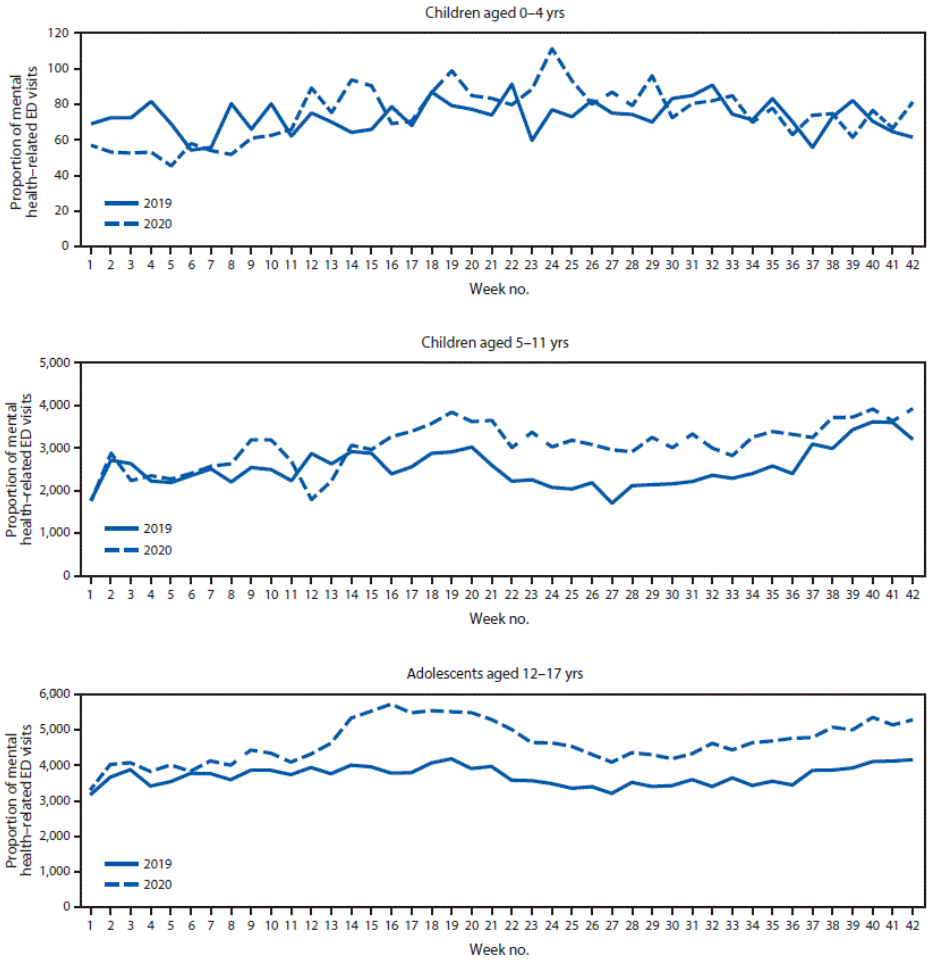
Mental Health and Age

One of the characteristics that stood out to me in the initiatives taken to address mental health in the FY22 CPS budget was the attention focused on elementary schoolers specifically.

[12] Kinge, J. M., Øverland, S., Flatø, M., Dieleman, J., Røgeberg, O., Magnus, M. C., Evensen, M., Tesli, M., Skrondal, A., Stoltenberg, C., Vollset, S. E., Håberg, S., & Torvik, F. A. (2021). Parental income and mental disorders in children and adolescents: Prospective register-based study. *International Journal of Epidemiology*, *50*(5), 1615-1627. https://doi.org/10.1093/ije/dyab066

[13] *Health insurers still don't adequately cover mental health treatment*. NAMI. (n.d.). Retrieved March 30, 2023, from https://www.nami.org/blogs/nami-blog/march-2020/health-insurers-still-don-t-adequately-cover-mental-health-treatment

As previously stated, CPS added more social workers and paraprofessionals in their elementary schools specifically to address this topic. However, other than the general tier one classroom social learning education implemented amongst all of the schools (as defined by the implemented approaches discussed previously in **Mental Health Improvement**: *Introduction*), I did not see *specific* approaches to addressing these issues in the middle and high schools; therefore, CPS needs to make progress to help address these topics in these upper age groups specifically. A study conducted by the Center for Disease Control and Prevention found that the proportion of mental health-related emergency room visits (during the main years of the pandemic) increased as age increased, with the highest rates being in the 12-17 year old age category, as can be seen in the graph below (see graph 2). Therefore, it is important to further support this age category by having more resources at the middle and high school level.



Graph 2: These three graphs show the proportion of mental health-related visits to the Emergency Room throughout 2019 and 2020 for three different age groups. From these graphs, it is clear that the highest rates are in the 12-17 year old category, therefore suggesting this group needs greater mental health support.
[14]

Addressing these issues preemptively by heavily supporting elementary school students is crucial for the upcoming generation, and therefore, I am not implying that we should take away the amount of resources the younger students are receiving; however, mental health issues are more likely to arise at later ages, and especially for the current population of older students who have not gotten proper mental health resources at a younger age, it is just as important to help

[14] Centers for Disease Control and Prevention. (2020, November 12). *Mental health–related emergency department visits among children aged 18 years during the covid-19 pandemic - United States, January 1–October 17, 2020*. Centers for Disease Control and Prevention. Retrieved March 30, 2023, from https://www.cdc.gov/mmwr/volumes/69/wr/mm6945a3.htm

better support these students now. Therefore, after reflecting on this information, I recommend there be certified school psychologists in Cambridge's middle and high schools.

What Does Mental Healthcare Look like During the School Day?

Outside of the Classroom

Assistant Principal Yesselman at the Cambridge Street Upper School gave salient insight to active measures schools should take in order to improve upon their mental healthcare. First, she discussed the important idea that a student should not have to skip class in order to speak to a counselor or receive other mental healthcare. I completely support this insight- skipping class could cause additional stress to students who are already facing challenging circumstances, and it is not fair for students' academics to suffer in order to receive healthcare. At the same time, counseling/mental health services should not simply be moved to other parts of the day such as in recess, lunch, and extra-curriculars, because during these times, students are experiencing other types of growth such as social skills as well as learning about non-academic interests. Lastly, students who are facing intense trauma or are working through extremely challenging topics should not be expected to immediately go to class after a counseling/therapy session. In tandem with this idea, a student may not fully be open with their emotions if they need to keep their mind focused and clear for the next task at hand.

I would urge schools to provide these services before or after school as students should not need to sacrifice another aspect of their well-being in order to receive proper care. Along with this idea, it is crucial that more transportation, or "early/late-busses," should be available in order to improve the equitability of these services (with the exception of Cambridge Rindge and Latin High School where students have access to public transportation). However, I do want to

acknowledge that, for a variety of reasons, there are students that cannot stay before/after school. For these students, I would encourage having open discussions with the adults that have active roles in these students' lives such as school psychologists/counselors, academic advisors, etc. to determine a time within the school day that would make the most sense for them on an individualistic level. Determine what aspects of the day are the most fulfilling, and also the ones that bring the most joy- it is important not to cut these out which could potentially inadvertently worsen a student's situation. Another possibility is varying the appointment times so they miss little of any one aspect of school (for example, one week their appointment is during lunch, the next is an extra-curricular). Lastly, depending on what a student's needs are, I would purposefully schedule in extra time after an appointment to decompress and process their emotions/ schedule appointments in a way where the activity a student is going to after their session "makes sense," meaning it will not cause additional distress. Therapy, counseling, and other mental health treatment can be an emotionally-taxing process, and therefore determining the best aftercare for a student should be heavily discussed.

Inside of the Classroom

In addition to changing the availability of mental health services, Assistant Principal Yesselman also proposed improving mental health education within the classroom. Although this goal was listed in the Cambridge Public Schools *FY 2022 Adopted Budget,* there should be more thorough steps taken to solidify the success of this initiative. One example is better supporting the teachers and counselors. Assistant Principal Yesselman brought up the need, due to the nature of these topics, for teachers and counselors who are teaching mental health curriculum to be properly supported by the school.[15] A curriculum on mental health education can be emotionally

[15] Tata, S. (2022, December 5). Interview with Blaine Yesselman. personal.

taxing for the students as well as the teachers, and, therefore, just as students are learning about resources available to them, teachers should be educated on resources that they can access as well. Furthermore, the teachers and counselors who are teaching these topics should be provided training on how to properly educate others and how to properly handle situations as they arise. Mental health can be an uncomfortable, confusing, and a taboo subject to talk about, especially in a public space like a classroom; therefore, it requires proper training and should be specially treated.

However, I do want to emphasize that although, at minimum, proper training is required for teachers who are involved with these delicate topics, it would be a much healthier and productive strategy for mental-health professionals to be the ones educating the students rather than teachers. In an article posted by the Pioneer Institute, Clinical psychologist Dr. Gary Thompson concluded, "Allowing inadequately trained, even if well intentioned, people to evaluate students' attributes, dispositions, social skills, attitudes, and intra-personal resources can be dangerous for the children who may be improperly labeled." There are clear issues and potential dangers with having non-mental health professionals teach these topics surrounding social/emotional/mental health and education, and therefore, I urge that CPS re-evaluates how they teach these topics in the classroom and who is teaching them.

Better Supporting Disadvantaged Students

Through analysis of the quantitative data that I received from the Cambridge Public Schools along with the testimonies given through the interviews I conducted with educational administrators, there is a clear need to better support disadvantaged students. A majority of this section will focus on pinpointing areas that directly have an impact on students coming from

economically-disadvantaged households and provide potential alterations that can be made to better support these students.

Quantitative Analysis of the Effects of Different Demographic Variables on Academic Success

The following tables show the results from performing three separate regression analyses. These analyses show how being of a certain demographic (the independent variables) affects a student's academic success, being defined as cumulative high school GPA, English MCAS scaled score, and mathematics MCAS Scaled Score (the dependent variables). This section will show the regressions themselves, discuss how the independent variables were coded, and interpret the results.

Regressions

Regression 1: Cumulative High School GPA

Coefficients:

	Estimate Std.	Error	t value	Pr(>|t|)
(Intercept)	43.9977	1.3636	32.266	< 2e-16 ***
Income	4.8444	0.8466	5.722	1.07e-08 ***
African American	-2.2939	0.8701	-2.637	0.00839 **
Gender	-3.8153	0.7330	-5.205	1.97e-07 ***
SpecialEd	9.6956	0.9804	9.889	< 2e-16 ***
Hispanic	2.3870	1.0064	2.372	0.01771 *

*Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Regression 2: English MCAS Scaled Score

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	468.9349	2.3442	200.038	< 2e-16 ***
Income	14.7657	1.4587	10.123	< 2e-16 ***
African American	13.7741	1.5002	9.181	< 2e-16 ***
Gender	-9.8490	1.2576	-7.832	5.26e-15 ***
SpecialEd	-0.4323	1.6783	-0.258	0.797
Hispanic	7.4170	1.7259	4.297	1.74e-05 ***

*Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Regression 3: Mathematics MCAS Scaled Score

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	457.513	2.312	197.913	< 2e-16 ***
Income	14.661	1.434	10.225	< 2e-16 ***
African American	14.586	1.477	9.876	< 2e-16 ***
Gender	-2.101	1.238	-1.697	0.0898 .
SpecialEd	1.333	1.657	0.805	0.4211
Hispanic	8.515	1.697	5.017	5.34e-07 ***

*Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

How Variables were Coded

1. Income
    a. 1 = "**Does not** qualify for free/reduced lunch (high income)"
    b. 0 = "**Does** qualify for free/reduced lunch (low income)"
2. African American
    a. 1 = "Caucasian"
    b. 0 = "African American"
3. Gender
    a. 1 = "Male"
    b. 0 = "Female"
4. SpecialEd
    a. 1 = "Student that **is not** receiving special education"
    b. 0 = "Student that **is** receiving special education"
5. Hispanic
    a. 1 = "Non-Hispanic"
    b. 0 = "Hispanic"

How to Read Results

The two most important pieces of information to examine in the regression analyses are the signs of the t-values (negative or positive) and the size of the Pr(>|t|), or p-value. The t-value compares the expected values based on the null hypothesis (which in this case is the probability that there is no statistically significant correlation between the demographic variables and the

academic variables) and the true values. Simply put, the greater magnitude of the t-value (no matter if it is positive or negative), the greater evidence there is against the null hypothesis. The p-value is the probability that the null hypothesis is true, meaning in this case, the probability that there is no statistically significant correlation between the demographic variables and the academic variables. If the sign of the t-value is positive, it indicates that as the independent variable goes from 0 to 1, there is a positive slope/ the dependent variable increases. For example, if we look at the first regression, the t-value for "income" is 5.722, meaning that students who do not qualify for free/reduced lunch are getting higher GPAs. If we look at the t-value for gender, it is -5.205, meaning that male students are getting lower GPAs than female students.

As for the size of the p-value, take note of the "significant codes" information at the bottom of each regression. If there is no symbol next to the p-value, it means that with this data, we cannot determine that there is a statistically significant relationship between the dependent variable and the independent variable being tested. However, if there is one of the following symbols: ".", "*", "**", or "***", listed next to the p-value of an independent variable, it means we can say with different degrees of certainty that there is a statistically significant relationship between the dependent variable and the independent variable being tested. Each symbol represents a different degree of certainty; for example, if an independent variable has a significance level of .001, this statistic indicates that there is less than a 0.1% chance that the finding is insignificant.

Interpreting Results

Using the above measurements of significance, it is clear that there is a significant relationship between a student being of a certain demographic and their academic performance. Although there are many different relationships that could be discussed, I will focus my attention toward the two that have the most relevance to this study: income and race. The most striking, and most statistically significant example, is being low-income. For all three regressions, being low income received the highest statistically significant code of "***", meaning that it can be said with more than 99.9% confidence that there is a relationship between income status and academic performance in terms of cumulative high school GPA, English MCAS scores, and Mathematics MCAS scores. Furthermore, with the T value being positive, it demonstrates that qualifying for free/reduced lunch corresponds with performing more poorly academically in comparison to students who do not qualify for free/reduced lunch.

Furthermore, another pertinent finding is the correlation between race and academic performance. For both MCAS regressions, (regression 2 and regression 3), both the African American variable and Hispanic variable have a positive T value and a "***" significance rating. These values indicate that it can be said with the highest degree of certainty that there is a correlation between race and MCAS scores, and specifically, being African American or Hispanic corresponds with scoring less highly on standardized testing when compared to the scores of caucasian students and non-hispanic students. However, in terms of cumulative high school GPA, there are not the same results. The t-value for the African American variable is -2.637, meaning that students who are African American tend to have a higher high school GPA than caucasian students. However, the significance code for this relationship is "**," meaning we can not determine this relationship with as much certainty as the previous relationships.

Similarly, although having a positive t-value (therefore making it opposite of the findings just discussed in terms of the African American variable), the Hispanic variable also had a larger p-value than many of the other variables, resulting in only a "*" significance code. Although the findings for the relationship between race and academic success in terms of cumulative high school GPA did not produce results that can be said with the same degree of confidence of the MCAS variables, there still is a statistically significant relationship.

Using this information, what is needed by the Cambridge Public Schools? First, it is clear that students coming from economically disadvantaged homes are not performing academically to their full potential as they are statistically more likely to have a lower cumulative GPA and perform worse on standardized tests, and therefore, greater steps need to be taken to support this population. Second, due to the findings of this data analysis, it seems that African American and Hispanic students are suffering more academically in terms of MCAS results rather than in terms of cumulative high school GPA. Although there can be many reasons for this discrepancy, and more research would be needed to determine the exact causes, I want to propose one potential contributing factor: racial biases in standardized testing. In this section, I will propose ways in which to better support students coming from economically disadvantaged households, and in the next section, "Standardized Testing," I discuss the issue of racial biases in the MCAS.

Current Financial Supports in Place for Disadvantaged Students and a Proposed Change

Below is a data table from the Cambridge Public Schools *FY 2022 Adopted Budget (see table 1).* This table outlines different types of general financial allocations throughout each school.

FY 2022 Per Pupil General Allocation

(For Instructional Materials, Supplies and Services)

	FY 2022 Projected Enrollment	School Base Allocation	School Enrollment Allocation	F/R Allocation	ELL Allocation	OSS Allocation	OSS Self Cont. Program Allocation	Field Trip & OST Allocation*	FY 2022 Total Allocation	Per Pupil	% High Needs
Elementary Schools	***per pupil amount:***		***$ 115***	***$ 100***	***$ 100***	***$ 50***					
Amigos	419	13,500	48,185	12,151	1,676	2,305	-	5,814	83,630	200	34.0%
Baldwin	344	10,500	39,560	8,256	688	3,096	1,500	4,411	68,011	198	32.5%
Cambridgeport	300	10,500	34,500	7,800	600	2,700	1,500	3,973	61,573	205	34.3%
Fletcher Maynard Acad.	292	10,500	33,580	19,564	1,168	4,672	3,000	6,389	78,873	270	66.3%
Graham & Parks	380	10,500	43,700	13,300	7,600	3,800	1,500	5,753	86,153	227	54.7%
Haggerty	245	10,500	28,175	8,085	1,470	2,573	-	3,606	54,409	222	42.9%
Kennedy-Longfellow	238	10,500	27,370	14,518	8,330	2,380	-	4,907	68,005	286	77.4%
King Open	378	10,500	43,470	16,632	1,890	4,725	2,000	6,440	85,657	227	50.6%
M. L. King	306	10,500	35,190	7,956	1,836	2,601	-	4,053	62,136	203	34.8%
Morse	301	10,500	34,615	12,040	1,806	3,913	3,500	4,874	71,248	237	49.7%
Peabody	311	10,500	35,765	10,574	1,866	3,577	1,000	4,643	67,924	218	47.6%
Tobin	349	10,500	40,135	11,517	1,047	3,316	3,500	5,137	75,151	215	39.4%
Subtotal	**3,863**	**129,000**	**444,245**	**142,393**	**29,977**	**39,656**	**17,500**	**60,000**	**862,771**	**223**	
Upper Schools											
Cambridge St	310	13,500	35,650	16,120	310	4,960	1,500	13,000	85,040	274	57.2%
Putnam Ave	253	13,500	29,095	14,927	253	3,289	1,000	13,000	75,064	297	59.8%
Rindge Ave	266	13,500	30,590	9,842	266	3,059	1,500		58,757	221	43.5%
Vassal Lane	305	13,500	35,075	14,335	3,355	3,355	1,500		71,120	233	57.0%
Subtotal	**1,134**	**54,000**	**130,410**	**55,224**	**4,184**	**14,663**	**5,500**	**26,000**	**289,981**	**256**	
Secondary Schools											
CRLS**	1849	729,000	212,635	85,054	7,396	18,490	5,000	-	1,057,575	572	
RSTA		266,790							266,790		
HS Extension	41	65,000	4,715	3,157	-	472		30,000	103,344	2,521	
Subtotal	**1,890**	**1,060,790**	**217,350**	**88,211**	**7,396**	**18,962**	**5,000**	**30,000**	**1,427,709**	**755**	**45.0%**
Grand Total	**6,887**	**1,243,790**	**792,005**	**285,828**	**41,557**	**73,281**	**28,000**	**116,000**	**2,580,461**	**375**	**48.2%**

**Special Program Allocation: Field Trip allocations for elementary schools, Saturday Schools at upper schools, Summer Program at HSEP, and Dual Enrollment Program at CRLS*
Elementary Field Trip per pupil allocation is: $ 7.77 for all students and $ 21.07 for F/R students.
*** CRLS Base includes $310,325 for partners, $40K for Dual Enrollment +$380,000 (95,000 X 4 LCs)*

Abbreviations used Above:

F/R = Students Eligible for Free and Reduced Federal Lunch
ELL = Students identified as English Language Learners
OSS = Students on an Individual Education Plan through the Office of Student Services
Self Cont. Program = OSS programs serving students in special education classrooms
High Needs = Students identified by Dept. of Elementary & Secondary Education as Economically Disadvantaged, Students with Disabilities, or ELLs.

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Table 1:The Cambridge Public Schools 2022 Fiscal Year Per Pupil General Allocation

Specifically, I want to discuss the "F/R (free/reduced lunch) Allocation" and "% High Needs" categories as those are relevant background data for this discussion of how to better support disadvantaged students. First, from this dataset we can see that the Cambridge Public Schools allocates $100 dollars for every student who qualifies for free/reduced meals, and

therefore the total F/R allocation varies per school, depending upon the number of students who qualify. Furthermore, for each school, there is a percentage of the student population who are deemed as "high needs" which is defined as students who are either economically disadvantaged, disabled, or English Language Learners. From this information, it is clear that the number of high needs students varies drastically between the schools. Baldwin School is at the lowest end with 32.5% of students being considered high-need, while Kennedy-Longfellow is at the highest end with 77.4%. With this large gap of high-need students between schools, I argue a higher percentage of funds should be allocated to schools with larger high-need gaps. Although the district allocates $100 for every English Language Learner as well as for every student who qualifies for free/reduced lunch and $50 for every student on individual education plans, I believe a setback is in the choice to provide a "school base allocation" for every school, meaning a fixed allocation for every school despite variables such as percent of high-need students and student population size. The school-base allocation is $10,500 for all schools except the high schools and Amigos Elementary which receives $13,500. Due to the sheer extremity of the different percentages of high-need students between schools, it simply does not seem fair to be giving an equal base allocation throughout the entire district. Rather, due to the costs associated with supporting these high-need students, this "base-allocation" should be determined by high-need percentage rather than be a fixed number. If there is a situation where the proposed changes discussed in this section of "Better Supporting Disadvantaged Students" require greater funding than a school has, I would argue for re-evaluating the current decision of doing equal school-base allocations for all of the schools in the district and consider varying that base allocation depending on a school's percentage of high-needs' students.

Through Advocating to Continue Universal Free Meals for All

Continuing free breakfast and lunch for all students throughout Cambridge is crucial for supporting all students, but especially economically-disadvantaged students. When the COVID-19 pandemic began, Massachusetts implemented free breakfast and lunch for all students throughout the state no matter if they were typically categorized as qualifiers for free/reduced meals. This decision was seen in states throughout the country as a result of the extreme rise of food insecurity during the pandemic. However, now that the intense measures that were taken as a result of the pandemic are beginning to slowly reverse as we find ourselves morphing back into "normal life," there is no doubt the need for free breakfast and lunch for all will be questioned. I therefore want to push the importance of advocating for continuing the implementation of this legislation indefinitely through citing the positive impacts access to food has on all children, but especially those coming from disadvantaged households.

<u>The Limitations of Free/Reduced Meals</u>

One of the biggest drawbacks of returning back to paid meals is having, once again, to face the limiting nature of free/reduced meal qualification guidelines. The goal of offering free/reduced meals is to support disadvantaged families who come from a low-income bracket. However, having a simple number determinant (a specific income) for deeming a family in need of free/reduced meals allows for many inequities, and ultimately, resulting in needy families not qualifying. One of the largest reasons behind this limitation is due to the qualifications being determined on a national level. Although Massachusetts is one of the most expensive states in the country to live in (and Cambridge itself higher than average[16]), districts throughout

[16] *Cost of living & prices in Massachusetts: 92 cities compared*. Livingcost.org. (2023, February 11). Retrieved March 30, 2023, from https://livingcost.org/cost/united-states/ma

Massachusetts must use the same national guidelines as all other states to determine who can eat for a free/reduced cost.[17] Therefore, although a family may "seem" like they can afford their children's meals in terms of the national standards, this determination might not reflect the actual reality of a family's financial situation due to the high cost-of-living in Massachusetts. The Food Service Director of Belchertown, Massachusetts, Barrett Grazioso, reflects this sentiment in an article from the Boston Globe regarding the importance of universal free meals, stating, "There are so many families who come close to qualifying for free lunch, but don't — sometimes by $100 — and this would really help them. … I can guarantee that for some kids, this is one of the healthiest meals they get."[18] Therefore, by returning back to paid meals, there will be families who truly need federal assistance through the free/reduced meal program not getting the support they need.

Another limitation of free/reduced meals is the stigma around qualifying for this option. As children grow older, they start to understand the implications of what it means to qualify for free/reduced meals, they now know that these students are coming from low-income households. Although we may wish that students would not be judged for their background or circumstances, unfortunately, the reality is, at these developing ages, bullying, both intentionally and unintentionally, will occur. Qualifying for free/reduced lunch can stigmatize these children and put an unintentional target on their back. Even though some schools/districts put in measures to eliminate how publicly a student has to make their meal reduction status known when checking out, the information can still unintentionally become public, and this likelihood is greater when a

[17] Russell, J. (2022, March 26). *With Free School lunches slated to phase out after June, advocates push state to continue funding - the Boston Globe*. BostonGlobe.com. Retrieved March 30, 2023, from https://www.bostonglobe.com/2022/03/25/metro/with-free-school-lunches-slated-phaseout-after-june-advocates-push-state-continue-funding/

[18] Russell, J. (2022, March 26). *With Free School lunches slated to phase out after June, advocates push state to continue funding - the Boston Globe*. BostonGlobe.com. Retrieved March 30, 2023, from https://www.bostonglobe.com/2022/03/25/metro/with-free-school-lunches-slated-phaseout-after-june-advocates-push-state-continue-funding/

large number of students pack lunches rather than eat school lunches. The desire to bring lunch rather than have school lunch (no matter the student's economic background) has been found to be rooted, for some, in wanting to separate themselves from the stigma of free/reduced meal qualifications as much as possible.[19] In an article posted by the Ford Foundation concerning the positive effect of universal free lunch on reducing free lunch stigma, they found that in New York City one in three students who qualified for free lunch chose to skip lunch entirely as a result of the stigma and the potential backlash from peers that they could receive.[20] Therefore, if free/reduced qualifications returned, these vulnerable students would be forced into a position between either risking stigmatization or not taking advantage of an opportunity for a nutritious meal. Furthermore, in addition to the stigma other students can place on a student on free/reduced lunch, studies show that universal lunch can contribute to alleviate the amount of disciplinary infractions committed by students, and specifically, students of low-income backgrounds.[21] Universal school meals was shown to have a statistically significant effect on student behavior, resulting in less suspensions and disciplinary measures with this effect being most prominent in students from low-income households. A combination of proper nutrition as well as removing the threat of stigmatization resulting from universal free meals are two explanations as to why this correlation is occurring.

[19] Mirtcheva, D. M., & Powell, L. M. (2009). Participation in the National School Lunch Program: importance of school‐level and neighborhood contextual factors. Journal of School Health, 79(10), 485-494.
[20] Brown, A. (2017, September 29). *Fighting the stigma of free lunch: Why universal free school lunch is good for students, schools, and families*. Ford Foundation. Retrieved March 30, 2023, from https://www.fordfoundation.org/news-and-stories/stories/posts/fighting-the-stigma-of-free-lunch-why-universal-free-school-lunch-is-good-for-students-schools-and-families/#:~:text=But%20eating%20free%20lunch%20had,income%20families%20make%20ends%20meet.
[21] *Stigma free lunch: School meals and student discipline - census.gov*. Census. (n.d.). Retrieved March 30, 2023, from https://www2.census.gov/ces/wp/2022/CES-WP-22-23.pdf

Nutritional Effects

Heidi Cook, principal of the Baldwin School, shared her thoughts in regards to the nutritional benefits of keeping meals free for all. She noted that back when lunch was paid, and as a result, a large number of students chose to pack their lunch from home, many students brought in prepackaged/ heavily processed food. She expects the high frequency of this type of unhealthy food was due to busy parents not having enough time to pack healthier (but more time consuming) lunches.[22] In addition to unhealthy packed meals being a result of parents' hectic schedules, students coming from low-income households are more likely to eat processed/pre-packaged foods and have less access to healthy alternatives.[23] Therefore, for the disadvantaged students discussed in the previous section whose family does not meet the strict criteria for free/reduced lunch but do not in actuality have the means to fully financially support their children, their ability to access nutritional meals will be impacted.

Furthermore, keeping free meals for all correlates with the ability of schools to provide highly nutritious meals. Food Service Director Grazioso comments on this aspect of universal meals as well, stating that the increase of meals has "allow[ed] her to hire more staff, buy more locally grown food, and serve more fresh produce."[24] When meals are universally free, schools see a large increase in the amount of students who eat school provided lunch rather than bring their lunch[25] (one reason for this extreme increase is due to de-stigmatization, which I talked

[22] Tata, S. (2022, November 29). Interview with Heidi Cook . personal.
[23] French, S. A., Tangney, C. C., Crane, M. M., Wang, Y., & Appelhans, B. M. (2019, February 26). *Nutrition quality of food purchases varies by household income: The shopper study - BMC public health*. BioMed Central. Retrieved March 30, 2023, from https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-6546-2

[24] Russell, J. (2022, March 26). *With Free School lunches slated to phase out after June, advocates push state to continue funding - the Boston Globe*. BostonGlobe.com. Retrieved March 30, 2023, from https://www.bostonglobe.com/2022/03/25/metro/with-free-school-lunches-slated-phaseout-after-june-advocates-push-state-continue-funding/
[25] Ruffini, K. (2022, March 9). *Schoolwide free-meal programs fuel better classroom outcomes for students*. Brookings. Retrieved March 30, 2023, from https://www.brookings.edu/blog/brown-center-chalkboard/2021/02/11/schoolwide-free-meal-programs-fuel-better-classroom-outcomes-for-students/

about in greater detail in the previous paragraph). Therefore, this increase in meal production results in an increase in reimbursements which allows district food directors to use the funds toward improvement, such as in this case through an increase in staff and the ability to afford even more nutritional options.

Conclusion on Universal Free Meals

It is imperative that the Cambridge Public Schools continue to provide universal free meals for their students, and, therefore, it is necessary to advocate to Massachusetts' legislators the importance of this policy so they vote to continue it. Although it began due to the extreme uncertainties and hardships of the COVID-19 pandemic, the evidence shows that there are a multitude of benefits for universal free meals and to eliminate it would cause harm to students and their families. During my conversation on universal meals with Baldwin Principal Heidi Cook, she also noted that she has seen an increase in academic performance and overall morale since the implementation of free meals for all in her school. It is clear that proper nutrition and food de-stigmatization correlate with health and success both in and out of the classroom. Other states, including California and Maine, have already chosen to keep universal free meals permanently. Schools have the opportunity and power to provide nutritional meals no matter the homelife situation of students, and to achieve this goal to the highest standard, universal free meals must be continued.

Through Advocating for Universal Preschool

Implementing universal preschool in Cambridge would not only allow for disadvantaged families who currently do not have the means to access tuition-based preschool an opportunity

for early education, but universal preschool would create long-term and long-lasting benefits for the student population, and the Cambridge Public Schools, as a whole.

Currently in Cambridge, universal preschool (defined as free and public preschool for all students) is not currently offered. However, the call for universal preschool has become more and more popular, and its implementation in districts throughout the United States has been on the rise. Two nearby Massachusetts school districts, Boston Public Schools and Springfield Public Schools, are part of this collective and currently offer universal preschool.

What makes universal preschool different from the current preschools that are currently offered in Cambridge? As of now, throughout the city there are 7 tuition-based preschools offered through the Department of Human Service Programs. In these preschools, families pay a daily rate for their children which is determined by their income bracket. These daily rates range from $40.77 a day to $84.94 a day, and families that fall into the lowest gross income bracket (between $0 - $126,200) will qualify for "additional tuition assistance," although this amount is not specified.[26]

Evidently, preschool in Cambridge can be a large expense for any family, but can be especially challenging for low-income families. As the system is now, it is not feasible for all parents to send their children to preschool; even at a reduced cost, the financial burden can still be too great. Furthermore, these tuition-based preschools can be an even greater expense for families with multiple preschool age children, as well as for families that do not have personal vehicles available to transport their children to and from the program.

In my interview with Baldwin Elementary School Principal Heidi Cook, we conversed in-depth on the topic of universal preschool. She brought up the topic herself, referencing that

[26] *City of Cambridge DHSP childcare and family support preschool tuition ...* City of Cambridge. (n.d.). Retrieved March 30, 2023, from https://www.cambridgema.gov/~/media/Files/DHSP/Preschool/2023/English/Tuition.pdf

the proposal of universal preschool has been of great interest and will be heavily discussed this upcoming budgeting season. When asked if she believes universal preschool would be beneficial for the city, her response was a resounding "yes." She reflects on her knowledge and experience working closely with elementary school students where she gets first-look at students emerging from preschool (or not from preschool). She states:

"We definitely see a difference with kids who come in having had a high quality preschool experience, whether that's in a home daycare or more formal. Those kids [Students that attended preschool] always do better."

She also makes a fundamental point about the importance of choice: if a family does not want to send their children to preschool, that choice is their decision. However, all families should have an equal opportunity to *make* that choice, and universal preschool would allow for that accessibility.[27] As the system stands, there are families that, due to the financial burden of tuition-based early education, do not have a choice; they simply do not have the means to send their children to preschool. The ability to have true choice and to make the best decision for their children is an opportunity all families deserve to have no matter their financial circumstances.

Numerous research studies have found that universal preschool has continuously demonstrated to provide numerous benefits for all students, no matter their background. One such study focused on Boston Public Schools, which is titled, "The Long Term Effects of Universal Preschool in Boston" which was published by BluePrintLabs out of the Massachusetts Institute of Technology in 2021. [28] In this study, they found that offering universal preschool for children in Boston, resulted in a multitude of positive effects. One result they found was the

[27] Tata, S. (2022, November 29). Interview with Heidi Cook . personal.
[28] *In Boston Guthrie Ray OBE Parag A. Pathak Christopher R. Walters*. BlueprintCDN. (n.d.). Retrieved March 30, 2023, from https://blueprintcdn.com/wp-content/uploads/2021/05/THE-LONG-TERM-EFFECTS-OF-UNIVERSAL-PRESCHOOL-IN-BOSTONast_1.pdf

correlation between preschool attendance and student behavior. They discovered that attending preschool resulted in fewer suspensions and being less likely to be incarcerated as a juvenile. In addition to a positive impact on student behavior, they found that preschool allows for better long-term educational attainment. This topic encompasses outcomes such as being more likely to graduate high school, take the SAT, enroll in college on-time, and to ever enroll in college. It is clear from this case study that universal preschool would benefit the totality of students, and the success of the Boston program can be translated to other districts as well.

Through Transportation

A conversation that stuck out to me in regards to a way to better support disadvantaged students was with Baldwin Elementary School Principal Heidi Cook on the topic of transportation. In our interview, she began her discussion by explaining how transportation is one of the largest district expenses, but there are ways that this transportation budget could be better utilized in order to accommodate student needs. A striking example she talked about is when students miss the bus, and, although this situation is common among all students, she has noticed a difference in which students are able to find an alternative ride to school and which are not. She notes that there are some parents who cannot drive their children to school if they miss the bus, because it would put them at risk for being fired from their job. Although some parents have the job security to be late/ miss a day of work or have the financial means to purchase alternative transportation for their child, it is not the case for all families. As a result, Principal Cook discussed how there are some students who have no choice but to miss the entire school day when they miss the bus. Her proposed solution would be to provide schools, especially schools for younger students, a van so that, in these unfortunate instances, staff is able to pick up the

students.[29] A van would prevent these students from falling behind in school and also be a way to better support entire families by removing the stress and anxiety that their child missing school can cause.*

In addition to a van, Principal Cook discussed the need of having more late transportation available for students. This topic was also brought up in my conversation with Chief Financial Advisor Claire Spinner, who stated that although the district will bus students to a different school to attend school after-care programs, it does not bus students home following the school after-care programs.[30] Although in many of my interviews there was praise regarding the fact that a majority of school after-care programs are free for all students, the lack of transportation after these programs results in immense inequity between who can truly utilize these opportunities. In a study completed by the Department of Transportation on education transportation, they found that 20 percent of low-income families do not own a private vehicle, and therefore, that entire group relies on bus transportation for their students to commute to school. Furthermore, although 80 percent of low-income families do own at least one private vehicle, 60 percent of that group still relies on bus transportation for their children to attend school. These statistics bear a striking difference to those of non- low income families where over 99 percent own a private vehicle and over 50 percent take a private vehicle daily to school.[31] The need for proper transportation to support students coming from low-income families is clear. The Cambridge Public Schools has

[29] Tata, S. (2022, November 29). Interview with Heidi Cook . personal.
[30] Tata, S. (2022, December 2). Interview with Claire Spinner. personal.

[31] *The longer route to school*. The Longer Route To School | Bureau of Transportation Statistics. (n.d.). Retrieved March 30, 2023, from https://www.bts.gov/topics/passenger-travel/back-school-2019

Furthermore, a van can be used as an "early/late bus" as referenced previously to help further support students seeking mental health resources (see **What Does Mental Healthcare Look like During the School Day?) as well as for the reasons in the following paragraph.*

definitely made progress in supporting low-income students having access to having extra-curriculars and after-care programs. However, by not providing transportation following these activities, a large population of students who do not have access to private transportation methods will suffer.

It is also important to point out that although the high school does provide T passes for their students and therefore after-care programs are more accessible, this method would not work for younger students who cannot safely travel by themselves on public transportation. Therefore, we need to prioritize providing after-school transportation for the younger populations so everyone can have an equal opportunity to begin their non-academic explorations at the same time.

Through Better Mental Health Care

(See **Connection between Mental Health and Income Status)**

Through Furthering Desegregation Efforts in Schools

History of Segregation and Redlining in Cambridge

The Boston area in general has a long and deep history of segregation and redlining, and Cambridge specifically has been affected. In the late 1930s and early 1940s, the government replaced a low-income tenement neighborhood with two low-income housing developments that were placed side by side designating one as “white only” and one as “Black only.” This implementation increased extreme housing segregation in the city. Furthermore, during this time,

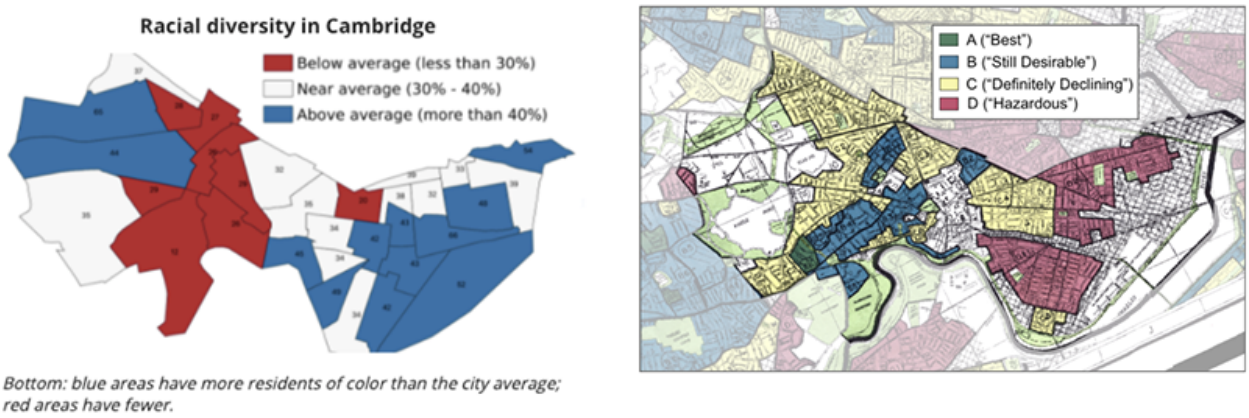
the Federal Housing Administration refused to insure mortgages in or near Black neighborhoods, in a process known as redlining.[32]

In 1965, the Racial Imbalance Act was passed by the Massachusetts legislature to combat the issue of racial imbalance in schools that resulted in cities due to the housing segregation and redlining that had been occuring. This legislation stated that any "racially imbalanced school," (defined as a school that was more than 50% non-white,) had to be changed to alter that percentage. There were 55 of those schools in Massachusetts in 1965: 45 in Boston, 9 in Springfield, and 1 in Cambridge- the Morse School. Therefore, in order to address this inequity, they first tried open enrollment measures. However, more drastic steps needed to be taken, so Cambridge adopted a "controlled choice" plan in 1981. This plan required the Cambridge Public Schools to take into account both parental preference as well as racial balance when assigning a child in the district to a school.

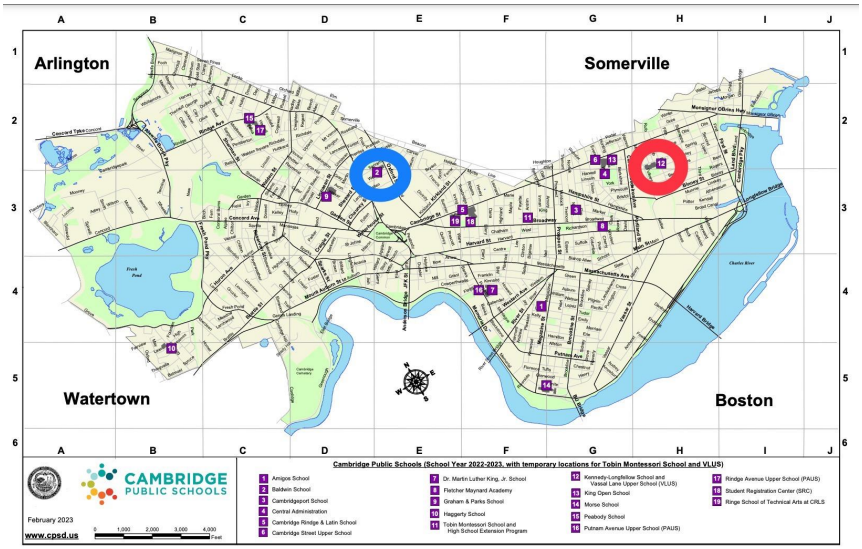
The Effects of Housing Segregation/ Redlining Today

The effects of housing segregation and redlining can still be seen today in Cambridge. Below on the left is a map of the racial diversity breakdown in Cambridge today. Below on the right is a redlined map of Cambridge during the 1930s (see *map 1*). In the redlined map, a district was scaled based on the number of Black residents residing there, with the red "Hazardous" districts meaning there was a large Black population in that area. There is a clear and striking similarity between these two maps. The racial segregation and redlining that occurred in the 1920s-1940s has clearly affected the racial makeup of Cambridge today.

[32] White, J. (2022, March 4). *A glance at Cambridge Black history.* Cambridge Community Foundation. Retrieved March 30, 2023, from https://cambridgecf.org/a-glance-at-cambridge-black-history/



Map 1: Racial breakdown of Cambridge today and redlined map of Cambridge during the 1930s[33]



Map 2: Current layout of schools in the Cambridge Public Schools district

Although legislation such as the Racial Imbalance Act and the supplemental policies that followed such as the "controlled choice plan" were aimed to combat the issue of racial imbalance in schools as a result of housing segregation and redlining, imbalance still exists in the Cambridge Public School system. Imbalance is now defined as "socioeconomic" rather than a

[33] Allen, M.-T. H. and J. (2021, April 19). *Undo the racist legacy that continues to exclude, hurt black residents: Support the missing middle*. Cambridge Day. Retrieved March 30, 2023, from https://www.cambridgeday.com/2021/04/19/undo-the-racist-legacy-that-continues-to-exclude-hurt-black-residents-support-the-missing-middle/

racial imbalance (because of decisions made by the Supreme Court). There is a clear correlation between the two demographics. As seen in the maps referenced above, there still is a racial imbalance in Cambridge geographically. Due to the redistricting and redlining and the associated policies regarding mortgages, a correlating socioeconomic divide among neighborhoods happened as well. In the Cambridge Public Schools today, this imbalance continues due to the factors that are taken into account when assigning children to schools. Although geographic location is not a guaranteed reason for school placement, a child's home address is taken into account when assigning them to a school and preference is given to children who are within a walkable distance to the school. Furthermore, there is a sibling preference as well, meaning if one child goes to a certain school, preference is given to that child's siblings. In my interview with Chief Financial Officer Claire Spinner and Cambridge School Committee Member Fred Fantini, both voiced their concerns with the current school placement system. Claire Spinner discussed how they use free/qualified lunch as the qualifier for socioeconomic balance[34], and as discussed in "The Limitations of Free/Reduced Lunch" section, this qualifier is a skewed/ not fully accurate way of determining a student's socioeconomic status. Furthermore, Fred Fantini discussed how, due to the sibling preference aspect, some schools are almost completely "pre-filled" with siblings of current students, therefore extending the socioeconomic imbalance for more and more generations. He continues on, saying it is clear that there is still a socioeconomic discrepancy between schools, and the topic of voluntary desegregation needs to be re-discussed and re-evaluated.[35] His analysis that there is still very much an imbalance in the Cambridge Public Schools is completely correct. As discussed in the beginning of this section, the percentage of high-needs students differs immensely between schools (with "high-needs"

[34] Tata, S. (2022, December 2). Interview with Claire Spinner. personal.
[35] Tata, S. (2022, December 2). Interview with Fred Fantini. personal.

defined as students who are economically disadvantaged, need special education, and are English language learners [with the highest portion of this category being economically disadvantaged students]). Therefore, it is clear this balance has yet to be achieved due to the previously discussed discrepancies in the placement of high- needs students between schools.

The Need to Further Desegregation Efforts

Since geography/walkability is still a factor taken into account for school assignments, this preference is perpetuating the socioeconomic/racial imbalance that resulted from the housing segregation and redlining. Map 2 on page 38 depicts the current public school layout in Cambridge. On the map, the Baldwin School is circled in blue and the Kennedy-Longfellow School is circled in red. If you compare their locations with the current racial diversity in Cambridge map and the redlined Cambridge map (*map 1*), there is a connection between high-needs percentage and its geographical location. The Baldwin school is located on the land that once was the blue "most desirable" area in the 1930s as well as in a district that currently has below average racial diversity. On the flip side, Kennedy-Longfellow is located on the land that once was the red "hazardous" area in the 1930s as well as in a district that currently has above average racial diversity.

Why are these two schools highlighted? As mentioned previously, the Baldwin School has the lowest percentage of high-needs students and the Kennedy-Longfellow School has the highest percentage. Therefore, it is clear that the socio economic imbalance amongst residential zones that began over 100 years ago is still having present-day effects. The socioeconomic balance of neighborhoods still has an impact on school placement. There are some anomalies such as the Amigos school which is located in a typically low-income area but has a low high-needs student population (although this anomaly can also be potentially explained by the

fact it is a special “dual language school” and therefore has a high appeal due to its specialization). However, it is clear that there is a geographical correlation between socioeconomic imbalance and school location.

As discussed by Fred Fantini, voluntary desegregation efforts need to be re-discussed/ re-evaluated by the Cambridge Public Schools. Although there are a variety of different ways these efforts can manifest themselves, one suggestion is to re-assess the school assignment process. First, with such large percentages of students in certain schools being comprised of siblings of current students, this sibling preference is perpetuating the inequities that have existed for years. Furthermore, with the racial and corresponding socioeconomic makeup of Cambridge, the preference of walkability and geographical location needs to be reassessed as well.

In order to put these ideas into action, increasing transportation in the district is crucial. As stated in the “Better Supporting Disadvantaged Students- *Through Transportation*" section, the need for better transportation is already evident, and helping combat the issue of present-day segregation in schools would allow this increase in transportation to serve an even greater purpose. More transportation options would make it easier for all students and their families to adhere to new regulations. Furthermore, as discussed in the previous section, students coming from economically disadvantaged households are more likely not to have access to private transportation than their more affluent peers. Therefore, this increase in transportation is most crucial for these populations and would allow them the opportunity to attend schools they once were unable to.

I realize an increase in transportation and placing more harsh boundaries on sibling and geographical preference in the school assignment process will result in extra costs and potential backlash. However, I urge the Cambridge Public Schools to look at the bigger picture; these

steps would be one actionable way to further the desegregation process in Cambridge. Being able to take advantage of an opportunity to move the city forward is worth a few small sacrifices in the process.

Inequities in Standardized Testing

Background on Racial Inequities in Standardized Testing

Many studies have been conducted to try and determine why there is a racial discrepancy in terms of standardized testing results, and it has been concluded time and time again that this variation can be attributed to the biased nature of these tests. A study conducted in 2021, "Rethinking Standardized Testing Testing From An Access, Equity And Achievement Perspective: Has Anything Changed For African American Students?" begins with a quotation from Dr. Harold Berlak, an educational researcher from Harvard University, who in 2001 looked into the same topic:

"Standardized testing perpetuates institutionalized racism and contributes to the achievement gap between whites and minorities. For instance, the deeply embedded stereotype that African Americans perform poorly on standardized tests hinders many African Americans' testing ability. Also, research has shown that minorities statistically have lower standardized test scores than whites because of existing, hidden biases in the development and administration of standardized tests and interpretation of their scores. Therefore, the achievement gap will not begin to close until current standards and assessment tests are significantly reformed." - Dr. Harold Berlak [36]

[36] Berlak, H. (2001). Race and the achievement gap. Rethinking Schools Online, Summer 15 (4), 10-11., from www.rethinkingschools.org

A study conducted in 2021 referencing research done in 2001 shows how, despite being around for years, the issue is still prominent today and testing has yet to be reformed in the ways called for by the author. Furthermore, I chose to highlight this quotation as it summarizes two of the key issues at hand that are resulting in racial discrepancy in standardized testing: stereotype threat and biases in test development/ administration.

Stereotype threat is the psychological phenomenon that a person may subconsciously perform to the ability they are "expected to" in terms of societal expectations. In the lens of standardized testing, the influence of stereotype threat may exhibit itself as the following: students of color do not perform well on these tests because there is a societal stereotype that people of color are not as intelligent as their white counterparts, and therefore, these students of color perform to the standard of this stereotype subconsciously.

In terms of testing development/administration resulting in racial discrepancy in standardized testing results, this aspect can show itself in many different ways. One way is through the test questions themselves containing racial biases. In a recent and extremely relevant example, in 2019 there was a study done by Stanford University to determine if one MCAS question was racist. The essay-based question asked students to to write from the point of view of Ethel, a white woman who betrays the slaves on their way to freedom.[37] Ultimately, they did find the question hurt test scores of Black students. In an article by GBH Education, they discuss this finding and go through the process of reviewing MCAS questions before they get to students. Although there is a bias committee that is in charge of reviewing MCAS questions for these exact reasons, they claim they "do not remember" this question, and in other interviews with other individuals who are in the MCAS development process, they too do not remember the

[37] Gerst, E. (2019, April 4). *Question pulled from MCAS for asking students to write as racist character*. Boston Magazine. Retrieved April 5, 2023, from https://www.bostonmagazine.com/education/2019/04/04/underground-railroad-mcas-question/

question.[38] This example shows that not only are there racial biases in standardized testing, there are not enough valiant efforts being made to prevent biases in the MCAS.

Addressing Racial Inequities in Standardized Testing

Before additional steps are taken, the Cambridge Public Schools must first have a strong understanding of the racial discrepancy in MCAS scores within their own district. As discussed in the quantitative findings, the difference in MCAS scores between Black and white students as well as Hispanic/Latinx and non-Hispanic/Latinx students is statistically significant, meaning, Black and Hispanic/Latinx students are statistically more likely to perform lower on the MCAS. This discrepancy is not as prominent for cumulative GPA, and therefore, it implies there are issues specific to standardized testing at play (for greater explanation, see *Quantitative Research:* "Quantitative Analysis of the Effects of Different Demographic Variables on Academic Success" and "Interpreting Results").

Although the Cambridge Public Schools alone cannot change the testing/administration of the MCAS, and stereotype biases are in all areas of society, and they are an extremely difficult and complicated topic to address, there are steps the Cambridge Public Schools can take to address these racial inequities. In terms of the issues surrounding testing/ administration of the MCAS, it is important for Cambridge to advocate to Massachusetts to take more measures in their bias screening progress. As discussed previously, there have been recent examples of questions containing racial biases, and despite having a committee in charge of screening the test for this exact issue, it is evident there are not enough precautions currently in place. As for stereotype biases, it would be useful for teachers to have a better understanding of the role

[38] Toness, B. V. (2019, August 2). *The life cycle of a controversial MCAS question*. News. Retrieved March 30, 2023, from https://www.wgbh.org/news/education/2019/08/02/the-life-cycle-of-a-controversial-mcas-question

stereotype biases have in not only standardized testing, but in the classroom, and even education in general. Furthermore, students should learn about this term as well and become more aware of the causes and repercussions of stereotype biases.

Income Inequities and Financial Implications in Standardized Testing

As referenced in the "quantitative research" section, in addition to Black and Hispanic/ Latinx students scoring worse on standardized testing, another demographic that also has a statistically significant correlation between themselves and lower MCAS scores is low-income students. Therefore, we are aware of the population who is suffering as a result of standardized testing, but what other side effects are standardized testing causing in addition to simply lower scores for certain students? For these disadvantaged students, the MCAS can have an effect on their long term academic success.

In my conversation with Blaine Yesselman, we talked at length about the issues regarding the MCAS, and through this discussion, she brought up the topic of "retesters." She stated that in the 9th grade, students have to pass the biology MCAS and in 10th grade, they must pass the mathematics and English MCAS. If they do not pass these tests, students must continue retesting through to their senior year. If they do not pass by their senior year they can get a "fake" degree as Ms. Yesselman puts it, but it can cause a negative impact on students applying to colleges, and, more specifically, hinders their ability to receive financial aid. She continues on, saying there is no support for these "retesters," and, as a result, many get stuck in the continuous loop of failing time and time again.[39] Since we know the population of students that are being disproportionately affected from standardized testing, they are the ones that will also be

[39] Tata, S. (2022, December 5). Interview with Blaine Yesselman. personal.

disproportionately affected by this lack of retesting support and the consequences that come as a result.

In addition, testing results affect the budget which ultimately results in hurting the students that need to be helped. At the completion of the MCAS, schools will get a score between one and four (with four being the worst) to put schools into categories of who performed the best and worst. These scores and rankings affect the budgets, with money being taken away from schools with a higher ranking (i.e. that perform poorly on the MCAS). Although Blaine Yesselman does discuss that this method is criticized more today than it used to be, it still occurs. Furthermore, the school is scored on the percentage of students who complete the examination. Many families choose to opt out their children, and Ms. Yesselman notes that those who opt out tend to be a mix of wealthier white families combined with Black families who think the test is racist. She continued that when a school is ranked poorly, the state does not adequately provide the proper support needed for them to improve, and as a result, the cycle repeats itself. As a result, families begin to want to send their children to other schools, typically those that are in more affluent areas. As a result, this effect perpetuates the issue of segregation among schools as discussed in the section, "*Through Furthering Desegregation Efforts in Schools."*

Addressing the Standardized Testing Inequities in the Cambridge Public Schools

In my interview with Claire Spinner, she discussed the newly created equity office which focuses on how to properly address the achievement gap. One of the ways they have been addressing this issue is better aligning the district's resources with student need; however, she pointed out that the budget is rigid and fixed, and there is typically only a very small amount left

to be used on new initiatives such as that. However, she says the district needs to be better at directing resources to schools that need extra aid such as those with a high low-income population, and as I discussed in, "Quantitative Analysis: Current Financial Supports in Place for Disadvantaged Students and a Proposed Change," I agree with Ms. Spinner's point— there needs to be a more appropriate budget division amongst the schools and schools with a larger disadvantaged population, who are in need of the resources, need to be properly supported.

Furthermore, it is crucial for the Cambridge Public Schools to continue to address the other prominent issues previously discussed throughout this paper, and as a result, the discrepancy in MCAS scores may indirectly improve. Massachusetts Teachers Association President Merrie Najimy discusses this idea, saying, "MCAS scores mostly measure the impact of structural racism in the form of underfunding of public schools and public health, along with housing, food, and income insecurity — factors that students bring to their learning environment. Yet the MCAS has become a weaponized system that reveals and protects racial biases in public education and curricula."[40] It is clear by advocating for policies such as improving mental health resources, continuing universal free meals, and furthering desegregation efforts, it will ultimately help to address the current system of inequities in standardized testing.

Conclusion on Standardized Testing

As Blaine Yesselman said in her interview, "We do not have to agree with [the MCAS] to do well in them," and she goes on to describe in detail how teachers are forced to "teach to the test" despite being against them and what they represent. Rather than eliminating standardized

[40] mhanson@masslive.com, M. H. |. (2021, September 21). *MTA says MCAS scores 'measure the impact of structural racism' as state releases Spring Test Results*. masslive. Retrieved March 30, 2023, from https://www.masslive.com/boston/2021/09/mta-says-mcas-scores-measure-the-impact-of-structural-racism-as-state-releases-spring-test-results.html

testing as many educators are pushing for, Massachusetts instead is moving in the opposite direction as they are increasing the bar for passing. Although I believe a significant amount of research has been done to prove the overarching issues and inequities with standardized testing, it is unlikely that the MCAS will be completely eliminated anytime soon. Therefore, I urge the Cambridge Public Schools to better address the inequities rooted in the MCAS. Advocate for better bias evaluation, educate teachers and students on the effects of stereotype bias, put better support systems in place for disadvantaged students and "retesters,"and reevaluate the role that standardized test scoring/completion has on a school's budget.

Conclusion

I want to make it clear that the topics discussed in this essay are not the only potential improvements that the Cambridge Public Schools can make, nor are the suggested remedies the only courses of action that can be taken. However, through both my quantitative analysis of the correlation between demographics and academic success along with my qualitative analysis of interviews from a wide range of education professionals in the district, I outlined what deemed themselves to be the most prominent issues and most actionable solutions. Going back to my original question, throughout this essay, I addressed the potential ways that the Cambridge Public Schools' budget can be better utilized to support its school community, and ultimately, its students' academic success.

I began with the topic of mental health improvement, starting with a discussion on the negative effects that the COVID-19 pandemic has had on mental health. I also addressed the connection between income-status and mental health, with those of a lower socioeconmic status more likely to be in need of mental health support, as well as age and mental health, with

teenagers more likely to be in need of mental health support. With these issues in mind, I proposed there be certified school psychologists to help properly address these concerns, and that they, along with other members of the school community, should participate in changes to how mental health is addressed in and out of the classroom. In terms of in the classroom, it should be the responsibility of trained mental health professionals to be teaching mental health education rather than the teachers themselves. However, if teachers do continue to teach this coursework, at minimum, they should receive proper training in support. Outside of the classroom, students that need mental health support should be able to recieve services at times that do not conflict with other important aspects of the school day such as classes and extracurriculars. With this idea in mind, it is necessary for schools to have services available before and after the normal school day.

From mental health improvement, I began the section on how to better support disadvantaged students. I began this section with quantitative analysis of how different demographic variables correlate with academic success as defined by MCAS scores and cumulative GPA. From this analysis, it was discovered that students coming from economically disadvantaged homes are not performing academically to their full potential as they are statistically more likely to have a lower cumulative GPA and perform worse on standardized tests. Furthermore, the data suggests that African American and Hispanic students are suffering more academically in terms of MCAS results rather than in terms of cumulative high school GPA. I would go on later to discuss a potential reason behind this discovery: biases in standardized testing. Following these discoveries, I discussed multiple proposals, starting with changing the foundational budget structure in order to take into greater account the high needs population in each school. From there, I urged the Cambridge Public Schools to advocate for

continuing the free/reduced meal for all program, implementing universal preschool in the district, adding more transportation options, and furthering desegregation efforts.

The next section was on the inequities of standardized testing. I began with the background of racial inequities in standardized testing and the MCAS specifically, leading to a proposal to bring more awareness to the topic of "stereotype bias" as well as to advocate for greater and more in-depth racial screenings of the MCAS. From here, I discussed income inequities and financial implications of standardized testing where I reflected back on the discoveries previously discussed on the correlation between income status and MCAS scores, as well as the issue of "retesters" who are not receiving proper support. I then discussed the effect of the MCAS on a school's budget and how the process has a negative impact on the students who are in the most need. The Cambridge Public Schools need to better align their resources with the schools who are in the most need which can be determined by the percentage of high-need students, and, in addition, I noted that advocating for policies such as improving mental health resources, continuing universal free meals, and furthering desegregation efforts, will ultimately help to address the current system of inequities in standardized testing.

Some issues may be easier and more straightforward to fix than others which is only natural. However, as I have noted throughout, in many cases, addressing one issue inadvertently will positively help relieving another issue. Furthermore, while some issues can be addressed within the district itself, others need to be addressed at the state-level; therefore, it is imperative that the Cambridge Public Schools persistently advocate for change on a policy level. None of the educators I interviewed had any doubt that the Cambridge Public Schools has the financial resources it needs to support their community; however, it is evident that these assets are not

being utilized to their fullest potential.the Cambridge Public Schools already has a sturdy financial foundation; it is now time to create a stronger institute on top of it.

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