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Jasleen Kaur Ashta Date

The Impact of COVID-19 on Education Experiences of High School Students in Semi-Rural Georgia

By

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Master of Science in Public Health

Global Epidemiology

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Bachelor of Arts & Science
McGill University
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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Science in Public Health
in Global Epidemiology
2021

Abstract

The Impact of COVID-19 on Education Experiences of High School Students in Semi-Rural Georgia
By Jasleen Kaur Ashta

Background: The COVID-19 pandemic led to the closure of schools and transition to online learning across the country. High school students, especially those belonging to populations most heavily impacted by the virus, experienced many obstacles and challenges to their education. This study examines the consequences of the pandemic on high school students shortly after the closure of public school buildings, and how these impacts vary by race/ethnicity, gender, grade level, socioeconomic status, and academic performance prior to the pandemic.
Methods: Racial/ethnically and socioeconomically diverse students (n=666) from two high schools in semi-rural Georgia completed a cross-sectional, one-time online survey. Survey results were linked to education and demographic data provided by the school district.
Results: While students largely felt supported by their teachers and school staff and 43% of students believed that they could excel academically during the coronavirus pandemic, approximately 60% expressed academic worry and obstacles to virtual learning, such as unclear expectations from teachers and social isolation. Differences by race/ethnicity, gender, grade level, and socioeconomic status were observed. Hispanic students expressed significantly more academic worry and less confidence in the transition than their peers, while Black students reported less worry despite significantly more technological obstacles than their peers. While female students expressed high satisfaction with school responsiveness and support, they also indicated significantly more academic worry and requested more additional resources than male students. Grade 12 students reported significantly higher levels of academic and career worry than students in lower grade levels. Students eligible for free and reduced lunch expressed significantly more worry and obstacles with online learning than their peers. Non-honors students and low attendance students had 1.6 times higher odds of being worried about grades and graduation compared to honors students and students with regular attendance.
Conclusion: High school students experience differential effects and concerns of the pandemic on their education and career trajectories. COVID-19 pandemic's impact on the education system has the potential to increase the existing academic achievement gap in the United States. Proactive measures to recover from academic loss in the pandemic must be taken to ensure the healthy development of our youth.

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I. Introduction

The COVID-19 pandemic led to abrupt school closures in 107 countries, including the United States, in March 2020 [1]. As administrators and educators swiftly transitioned to online learning, students and their caregivers were left with many concerns about their education, academic success, and career trajectories [2]. Understanding the educational impact of the pandemic on adolescents, who are undergoing a sensitive development period, is essential to supporting this vulnerable population through and beyond the pandemic [3]. Adolescents who are particularly susceptible to multidimensional negative effects of COVID-19, including low socioeconomic students, Black, and Latinx students, may be experiencing unique concerns regarding their educational and career future [4]. Risk of COVID-19 infection is greater among groups already affected by health inequities across race/ethnicity, income, age, language, and living conditions [5]. Students and families of these marginalized groups may additionally be impacted at a greater rate by job loss and have access to less safeguards and resources to buffer the economic impact of the pandemic [6]. Highlighting and understanding these educational and long-term impacts on adolescents, especially those most vulnerable to the worst effects of the pandemic, is imperative to ensuring their healthy development and successful transition into adulthood.

The educational impacts of COVID-19 have been felt by all students and caregivers across the US, and many of the long-term academic, socioemotional, and developmental impacts are yet unknown. Upon transitioning to online learning, teachers, administration, students, and caregivers were forced to adjust to this new virtual environment amidst COVID-19 outbreaks in their communities and in their own homes [7]. Many school districts developed a plan to train teachers on remote instruction, lend computers to students, and support internet access in student

homes, while others lacked the infrastructure and funding to smoothly adapt to the abrupt change. These contrasting transitions in response to the pandemic may result in a more difficult adjustment for students who are already vulnerable to the pandemic's impact.

The transition from in-person to virtual learning exacerbated differential technology barriers based on pre-existing inequities in the United States (e.g. income inequality, access to resources, the digital divide, etc.) [8]. Some of the most immediate issues to emerge were a lack of stable internet in students' homes, unreliable technology, and no quiet space to attend classes and study [8]. The digital divide heightened many existing technical challenges, especially for rural students who are more likely to have severely limited or nonexistent internet access compared to their urban counterparts [8]. In 2018, only 52% of rural US residents had the broadband speed to support a household with four devices compared to 94% of urban residents [9]. Home internet connections with low bandwidth are not able to support multiple devices and may require staggered internet use; this obstacle may restrict students from attending online class or completing coursework at a specific date or time [8]. Students without stable or sufficient internet access in the home are at risk of academic loss and lagging behind their peers educationally during the COVID-19 pandemic [10]. While schools, libraries, and community centers offered internet access to students for schooling during the pandemic, these resources may also be more difficult for rural and low SES students to utilize due to the distance needed to be traveled to access these resources [8]. In addition to urban-rural disparities in the effects of the digital divide, limited access to connectivity is seen by race/ethnicity and SES. Black and Hispanic households are significantly (1.3 – 1.4 times) more likely to experience obstacles with technology aspects compared to non-Hispanic white households [11]. Students from lower income households are over 2.5 times more likely to have limited access to a computer or their

internet and are more likely to rely on mobile devices to access the internet than students from higher income households, resulting in reduced instructional time and poorer performance in reading, mathematics, and science [10,11]. Access to reliable internet and devices is imperative for student learning during the pandemic.

Many students who experienced these technical obstacles with online learning were also impacted by the economic effects of the pandemic [6]. The job loss experienced by low-income families resulted in many adolescents taking on adult responsibilities such as a job outside the house or caretaking within the home, as opposed to attending virtual school [12]. Food access is an additional barrier exacerbated by the pandemic, especially for students of low socioeconomic status. These students who may have relied on free or reduced breakfast and lunch provided at school were left with restricted or no access to these meals when school buildings were closed [13]. School lunch is correlated with improved academic performance; while hunger, irregular, or unhealthy diets are associated with low educational attainment and are barriers to focus with long-term risks to physical health, mental wellbeing, and healthy brain development [13].

Between these multidimensional and overlapping issues, many students simply stopped attending virtual school. The United Nations Children's Fund estimates that at least 24 million students worldwide could drop out of school during the pandemic, noting that the longer children remain out of school, the less likely they are to return [14]. In the United States, an estimated 3 million students may not return to formal education after March 2020 [15]. Several major school systems report higher absences. For example, Boston public schools has reported that more than 1 in 5 children may be a virtual dropout; Miami-Dade County indicated that 16,000 fewer students enrolled in Fall 2020 than the year prior; and the country's second-largest school system Los Angeles Unified saw a reduction of 11,000 students enrolled [16,17]. Moreover, the

obstacles associated with virtual learning led to high levels of absences; upon the eventual return to in-person instruction, these students may return to the classroom with a detrimental level of academic loss from the past year.

Despite school districts' efforts to maintain academic and socioemotional learning for students, the potential impact of school closures on academic achievement have been projected and labeled as "the COVID-19 slide" [18,19]. Based on preliminary COVID-19 estimates, the slide from spring 2020 shutdown was expected to result in a 30% learning loss in reading by the start of the 2020-2021 school year and a loss of more than 50% in mathematics [18]. Alternate projections compared loss of learning in three scenarios: return to in-class schooling in fall 2020, return in January 2021, and return in fall 2021 [19]. The risk for significant learning loss is present in all three scenarios, with increasing loss as virtual learning is extended [19]. Learning loss is recognized to be dependent on access to remote learning, quality of remote instruction, and degree of engagement [19]. In the Netherlands – where the national lockdown was comparatively short, schools received equitable funding, and students have access to the highest internet access rates in the world – students were found to make little to no academic progress while learning from home [20]. The academic loss from the pandemic will affect this generation's students for years, unless appropriate recovery efforts can be identified and implemented, particularly for those students in vulnerable groups.

Unfortunately, even prior to the COVID-19 pandemic, a long history of stark academic disparities has been known to exist. Differences by socioeconomic status (SES), gender, race/ethnicity, and geography can be explained through economic, structural and societal factors [21]. Black, Latinx, and low-SES students have fewer opportunities to learn K-12 math and science as well as less access to qualified teachers, higher education, advanced placement

courses, and education in general [22–26].Children from low-SES backgrounds demonstrate lower math and literacy scores as early as kindergarten, leading to growing academic under-achievement throughout the life course [27,28]. The Black-White academic gap is known to increase with each school year [29,30]. One element of this increasing gap is that compared to white students, even high-achieving Black students often have less access to challenging learning experiences, fewer resources, and receive less attention from teachers who focus on the lowest-achieving students [29,30]. Achievement gaps are widest in the southern and southwestern US [21]. The digital divide is known to contribute to the rural-urban academic achievement gap [8]. With the concurrent pandemics of COVID-19 and systemic racism impacting health and education, adolescents – who are experiencing this turbulence during their developmental period – may be uniquely affected. In the Netherlands, learning loss during school building shutdowns was greatest among students from economically disadvantaged homes [20]. In the United States, the COVID-19 pandemic is projected to widen the disparities that exist, particularly since Black and Hispanic populations are disproportionately affected by the virus [31]. The pandemic is widening the already existing academic achievement gap, deeming it necessary to proactively understand and address high school students' needs.

An additional potential factor to the widening academic achievement gap is the mode of learning that students returned to for the Fall 2020 semester. The US did not operate under a national school reopening plan; therefore, the decision of whether to and how to reopen school buildings was left to each school district [32]. Several major school districts began the 2020-2021 school year completely virtual while others required all students, staff, and administrators to return to buildings [32]. Many districts operated in a hybrid status: in some cases, students learned in-person a select few days of the week on a rotating schedule [32]. In other districts,

students and caregivers were provided the option to either attend fully in-person or as a distance learner [32]. While some students see the benefit of distance learning, others struggle with the online format. This may lead to academic loss and a potential to widen the existing academic achievement gap [10]. The factors which influence a student and caregiver to select the distance learning modality may be worth investigation.

Understanding high school student's educational experience – including their concerns, their obstacles, and their needs – during the COVID-19 pandemic is imperative to supporting the development of our youth's capacity to succeed. This is particularly true for the adolescents known to be hit hardest during the pandemic, whose needs and obstacles may be unique and require proactive measures.

A. Research Questions

This research will examine the impact of the COVID-19 pandemic and transition to online learning on the education experiences of students from two high schools in semi-rural Georgia through three key research questions (RQ). RQ1) How has the COVID-19 pandemic affected students' education experiences and concerns around their academic future and career? It is hypothesized that the high school student experience during this time period has been characterized by concern with their grades and difficulty transitioning to online learning. RQ2) What is the relationship between pre-pandemic attendance and GPA with educational concerns regarding COVID-19? It is hypothesized that students with high pre-pandemic attendance and GPA will likely report less concern with the adjustment to online learning and education during the pandemic.

Additionally, as the mode of learning has the potential to affect academic learning loss and lead to the widening of the academic achievement gap among vulnerable populations, this

research will explore the association between perception of the pandemic upon school closures in Spring 2020 and the mode of learning selected for Fall 2020. Specifically (RQ3) What is the association between student perception of the pandemic in Spring 2020 and the decision to attend school virtually or in-person for Fall 2020? It is hypothesized that students who indicate less readiness for online learning and students who indicate more worry about their grades and graduation will be more likely to attend school in-person in the Fall 2020 than their counterparts. All three research questions will be examined for the overall study population as well as by several student characteristics: race/ethnicity, gender, grade level, and SES status.

II. Methods

A. Study Design

To understand American high school students' response to the onset of the COVID-19 pandemic and simultaneous transition to online learning on March 16, 2020, a cross-sectional online survey was administered through Qualtrics [33]. The study protocol and survey were approved by the Emory University Institutional Review Board.

B. Study Population

A convenience sample of 761 students in grades 9 through 12 from two semi-rural high schools in north-central Georgia completed the All-School COVID survey in April and May 2020, representing 19.3% of 3,946 eligible students from both high schools. The two high schools serve the students of the county in its entirety and represent a racially/ethnically and socioeconomically diverse population. The vast majority (87.5%) of the students who completed the survey assented to the linkage of their survey data with demographic, education, and fitness data provided by the school district, resulting in a study population of 666 students.

C. Data Sources

Data were obtained from two sources: 1) All-School COVID survey administered to students; and 2) education and demographic data provided by the school district. Additional details about these two sources are provided below.

All-School COVID Survey. This instrument was created by a team of researchers at the Rollins School of Public Health at Emory University. Established and validated survey instruments were utilized or adapted to measure the desired outcomes. The survey consists of 54 questions organized into five content areas: 1) stress and mental health, 2) academic success and confidence, 3) knowledge of the coronavirus, 4) pandemic behaviors, and 5) sleep habits. The

majority of questions are multiple-choice. The survey was pilot tested with several high school students from non-participating schools and school administrators from the student schools were given the opportunity to review the survey instrument and provide feedback.

Parents and guardians were provided information about the study and survey instrument and were able to opt their students out of study participation. The survey was sent by school administrators to student email accounts of all students whose parents/guardians did not opt them out (99.8% of all students) at the two participating public high schools on March 30, 2020. School administrators promoted the survey throughout April 2020 by re-sharing the survey link in several emails to students and on school social media pages. The link was active until May 8, 2020. Prior to beginning the survey, students assented to participation. All students who went to the survey link were eligible to receive one of fifty $25 Amazon gift cards regardless of the completion of the survey. The survey took approximately ten minutes to complete, and all questions were optional.

School District Data. For all assenting students, demographic and education data were provided by the Office of Student and Data Services of the participating school district. The Emory research team linked All-School COVID Survey data with school-provided demographic and education data using participant-provided student identification numbers. The linked dataset was deidentified through the replacement of student identification numbers with arbitrary alternate identification numbers. This dataset was then used for analysis.

D. Data Measures

Exposures.

Research Question 1. The descriptive nature of RQ1 (How has the COVID-19 pandemic affected students' education experiences and concerns around their academic future and career?) did not necessitate any exposure variables.

Research Question 2. For RQ2 (What is the relationship between pre-pandemic attendance and GPA with educational concerns regarding COVID-19?), exposures of interest included attendance records and grade point average. Fall 2019 and Spring 2020 GPA (calculated using grades from all classes) and attendance records (number of days attended and missed) were provided by the school district. A dichotomous honors-eligibility variable was created from the GPA variable to determine whether students met honors criteria as defined by the school district. A dichotomous attendance variable was created to identify students with low attendance as defined by the school district.

Research Question 3. For RQ3 (What is the association between student perception of the pandemic in Spring 2020 and the decision to attend school virtually or in-person for Fall 2020?), two questions related to the academic worry and level of comfort and readiness for virtual learning from the All-School COVID survey were used as exposures in the analysis of this research question. The first question is: "How worried are you about the impact of the coronavirus pandemic on grades and/or high school graduation?" This question elicits responses in a 5-point Likert scale from not at all worried to extremely worried. The second question is: "How much do you agree with the following statement? I have done a good job adjusting to online learning." This question elicits responses in a 5-point Likert scale from strongly disagree to strongly agree.

Outcomes.

Research Question 1. Five questions related to academic success and confidence were examined from the All-School COVID survey: 1) How worried are you about the impact of the coronavirus pandemic on (a) grades and/or high school graduation, (b) college admissions and enrollment, (c) career trajectory and employment opportunities. This three-part question elicits responses in a 5-point Likert scale from not at all worried to extremely worried. 2) How much do you agree with the following statement? (a) I believe that I can excel academically during the coronavirus pandemic. (b) I have done a good job adjusting to online learning. This two-part question elicits responses in a 5-point Likert scale from strongly disagree to strongly agree. 3) How satisfied are you with the responsiveness and support provided by each of the following people at your school? (a) your teachers, (b) guidance counselors, (c) principal and/or school administrators. This three-part question elicits responses in a 5-point Likert scale from extremely dissatisfied to extremely satisfied. Due to low response counts at the ends of the 5-point Likert scales ("Extremely…" and "Not at all…" options), response options were collapsed into three categories for these three questions. The remaining two academic success and confidence questions elicit "select all that apply" responses. 4) Have you experienced any of the following obstacles during online learning? Response options include: (a) internet access / connectivity issues, (b) feeling isolated from other students, (c) difficulty communicating with teachers, (d) tools / technology not working as expected, (e) lack of technology / devices (e.g., laptop, tablet), (f) unclear expectations from teachers, (g) no quiet place to learn in my home, (h) other (please specify), and (i) have not experienced any obstacles. 5) What additional resources or services could your school and/or teachers provide to help you with online learning? (a) more lenient grading policy, (b) more extra credit opportunities, (c) more summer learning opportunities, (d) better internet access / connectivity, (e) more devices, tools, or technology (e.g. laptop, tablet),

(f) more structure, (g) more clear communication from teachers, (h) more clear communication from administrators, (i) more recorded lessons, (j) more live lessons, (k) more group interaction (with other students), (l) more academic / college counseling services or resources, (m) more mental health counseling services or resources, (n) other (please specify), and (o) none. The response options for these latter two questions were yes or no for each of the sub-options. For each sub-option, "yes" responses were tallied. Submitted responses for sub-option "Other (please specify)" were analyzed by theme.

Research Question 2. The three outcomes examined for this research question were selected from the sub-statements above: (1a) How worried are you about the impact of the coronavirus pandemic on grades and/or high school graduation; (2a) How much do you agree with the following statement? I believe that I can excel academically during the coronavirus pandemic; and (2b) How much do you agree with the following statement? I have done a good job adjusting to online learning.

Research Question 3. The outcome of interest for this research question is whether the student opted to attend school in-person or virtually for Fall 2020, as provided by the school district. Prior to the start of the 2020 - 2021 school year, students and parents/guardians were notified that they could opt for distance learning as opposed to the standard in-person format. Students were able to change their learning modality at any point during the school year. The learning modality data represented in this study reflects student modality as of December 11, 2020.

Covariates.

Covariates examined for each research question included demographic and education data provided by students and the school district. Demographic information obtained from the

All-School COVID Survey includes grade level at time of survey completion (select one: 9th, 10th, 11th, 12th), self-reported race (select all that apply: white, Black or African American, American Indian or Alaska Native, Asian, and/or Native Hawaiian or Pacific Islander), self-reported ethnicity (select yes or no: Hispanic, Latino/a, or of Spanish origin), self-reported gender (select one: male, female, non-binary), and self-reported free or reduced lunch (FRL) eligibility (select one: yes, no, don't know). Demographic data provided by the school district includes gender, race, ethnicity, FRL eligibility, and grade level. This analysis utilized self-reported race, self-reported ethnicity, self-reported gender, and school provided FRL eligibility measures. Self-reported measures were utilized for race, ethnicity, and gender to represent the student's self-identified experience at time of survey completion. Due to missing and inaccurate data surrounding FRL eligibility from the All School COVID Survey, school-provided data was used for this measure.

A dichotomous (low or standard) attendance variable was created based on pre-pandemic attendance records during the 2019-2020 school year: a student with 10 or more absences met the "low attendance" criteria. A dichotomous (yes or no) honors-eligibility variable was also created based on students maintaining a cumulative GPA of at least 89.5% during the 2019-2020 school year. The dichotomous honors-eligibility and attendance variables, along with the learning modality variable described above were also used as covariates in the analysis for the first research question.

E. Analyses

Descriptive analyses were performed for the study sample of 666 students. Bivariate analyses examining the correlation between low pre-pandemic attendance and demographics,

honors eligibility (GPA) and demographics, as well as Fall 2020 learning modality and demographics were conducted.

Descriptive analyses of the study sample's responses to the five survey questions related to academic success and confidence were then completed. Frequencies for the overall study sample were examined for each of the five questions. Thereafter, bivariate analyses for each survey question were performed across several covariates of interest: race/ethnicity, gender, grade, FRL status, low attendance, honors eligibility, and Fall 2020 learning mode.

Following this descriptive analysis, logistic regression was used to examine the relationships between pre-pandemic attendance and education concerns as well as honors eligible status and education concerns regarding COVID-19 at the onset of the pandemic. Six regression models were run altogether, examining each of these two exposures (attendance and GPA) with each of three outcomes (worry about the pandemic on grades and/or high school graduation; belief that they can excel academically during the pandemic; adjustment to online learning). Crude (unadjusted) associations for each of these six models were first performed. Confounding assessments to determine possible covariates to include in the model were completed. Adjusted models were run for each of the six models.

Finally, an exploratory multiple exposure logistic regression analysis was performed to identify factors associated with the decision to begin the 2020-2021 school year in-person or remote. Two exposures included in this exploratory analysis were whether students indicated high levels of academic worry in spring 2020 and whether students indicated high levels of readiness for virtual learning in spring 2020. Student perception of the pandemic in Spring 2020 was examined through two variables, each on a 5-point Likert scale: level of academic worry at the start of the pandemic and level of readiness for virtual learning at the start of the pandemic.

These variables have a low correlation (correlation coefficient = -0.4211, $p < 0.0001$), therefore the two variables were examined as two separate exposures. Crude associations for each of the four models were reported. A confounding assessment was performed to determine which covariates were to be included in each of the final two models and adjusted associations for each of the four models were reported. Data were analyzed using SAS 9.4.

III. Results

The study sample (n = 666) is racially/ethnically diverse, with 44% of the students being non-white (Table 1). Female students comprise the majority (63%) of survey respondents. All four grades are represented in the sample, with 9th graders making up the largest portion (32%), followed by 10th graders (27%), 11th graders (25%), and finally 12th graders (22%). Less than half (42%) of the study sample qualifies for free and reduced lunch. Approximately 15% of the sample (100 students) meet the criteria for pre-pandemic low attendance and 57% (382 students) meet the criteria for honors eligibility. Of the 551 students who returned to school in the 2020 - 2021 school year, 28% opted for distance learning compared to 72% in-person learning.

Compared to the overall sample, FRL-eligible and non-honors students are over-represented among low attendance students. FRL-eligible students make up 61% of low attendance students, but just 42% of the overall sample. Similarly, non-honors students comprise 61% of low attendance students, compared to 43% of the overall sample.

Research Question 1: Impact of the Coronavirus Pandemic

Students expressed worry about the impact of the coronavirus pandemic on grades and high school graduation; college admissions and enrollment; and career trajectory and employment opportunities (Table 2). Approximately 60% of students reported worry about their grades and/or high school graduation ($p < 0.0001$). Across racial groups, white students expressed the least worry, with 47% indicating little to no worry compared to 67% of Black students who expressed some degree of worry (somewhat, very, or extremely) (Table 2a: $p = 0.0079$). Students with low attendance expressed more academic worry than those with regular attendance (Table 2c: 67% vs 57% report some worry). Students who did not achieve honors eligibility expressed more worry about grades and graduation than did honors-eligible students

(Table 2c: 65% vs 54%, p = 0.0202). Although male students were less worried than female students (Table 2b: 54% vs. 61%, respectively) this difference was not statistically significant (p = 0.1306). Grade 12 students were the most worried about grades and graduation, with 45% expressing very worried or extremely worried compared to students in other grades who reported this level of worry at about 30%, though this was also not statistically significant (Table 2b: p = 0.0799. Non-FRL eligible students expressed slightly less worry than FRL students (Table 2a: 44% said not at all and not too worried vs 38%, respectively, p=0.0846). Students who opted for distance learning were more very or extremely worried than those who were learning in-person (Table 2c: 35% vs 29%, respectively, p=0.4287).

Less than half of students (40%) were somewhat, very, or extremely worried and 60% were not at all or not too worried (Table 2: $p < 0.0001$) about college admissions and enrollment. These results were significant when stratified by race and by grade level, with Hispanic students (Table 2a: 26%, p = 0.012) and Grade 12 students (Table 2b: 36%, $p < 0.0001$) expressing the most worry. Though not significant, female students were more worried than male students (Table 2b: 43% vs 36%, p = 0.115), as were FRL eligible students compared to non-FRL students (Table 2a: 45% vs 37%, p = 0.1071).

About half of students (44%) expressed worry about career trajectory and employment opportunities (Table 2: $p < 0.0001$). This worry was most pronounced among older students (Table 2b: Grade 12: 66%, p = 0.0108) and FRL-eligible students (Table 2a: 50%, p = 0.0108).

Research Question 1: Academic Confidence and Comfort with Online Learning

Many students believed that they could excel academically during the coronavirus pandemic (Table 3: 43%, $p < 0.0001$), though an additional 38% of students strongly or somewhat disagree with this statement. Black students were significantly more confident than

students of other racial groups in their academic success during this time period (Table 3a: 56%, p = 0.0071), as were honors students (Table 3c: 48%, p = 0.0042). Female (Table 3b: 44%), Grade 12 (Table 3b: 46%), non-FRL (Table 3a: 46%), and standard attendance (Table 3c: 44%) students also expressed more confidence than their counterparts, though these results were not significant.

Approximately half of the sample (46%) reported that they have done a good job adjusting to online learning, compared to 41% who disagree with this statement (Table 3: p < 0.0001). Black students expressed more confidence, at 53% (Table 3a: p = 0.3788), as did female students (Table 3b: 49%, 0.243), students in Grade 12 (Table 3b: 49%, p = 0.8398), and distance learners (Table 3c: 51%, p = 0.2555). Significant results were found by FRL, attendance, and honors status, in which non-FRL students (Table 3a: 49%, p = 0.0445), standard attendance students (Table 3c: 46%, p = 0.0364), and honors students (Table 3c: 52%, p = 0.0036) reported more confidence with the transition to online learning.

Research Question 1: Satisfaction with Teachers and School Staff

The majority of students reported satisfaction with the responsiveness and support provided by their teachers (Table 4: 66%, p< 0.0001), their guidance counselors (44%, p < 0.0001), and their principal and/or school administrators (51%, p < 0.0001). Black students, female students and Grade 12 students expressed the most satisfaction with school staff as compared to their counterparts (Table 4a, Table 4b). While FRL-eligible students reported similar satisfaction to non-FRL students with teachers, principals, and school administrators, they reported significantly more satisfaction (Table 4a: 49%, p = 0.0394) with guidance counselors than their counterparts. Honors students were significantly more satisfied with all

school staff and teachers than their counterparts (Table 4c: teachers: 72%, p = 0.0002, counselors: 48%, p = 0.0026, administrators: 54%, p = 0.0001).

Research Question 1: Obstacles with Online Learning

Approximately one-fifth (19%) of the overall sample reported no obstacles during online learning (Table 5). Among the 81% of students who did report obstacles, the most commonly reported were unclear expectations from teachers (Table 5: 50%), feeling isolated from other students (44%), internet access / connectivity issues (35%) and difficulty communicating with teachers (32%). Between 40 and 60% of students across all stratifications of covariates reported unclear expectations from teachers. Female students reported significantly more isolation from other students than their male counterparts (Table 5b: 48% vs 37%, p = 0.0081), as did honors students compared to non-honors students (Table 5c: 48% vs 38%, p = 0.0112). Though not significant, more students who selected in-person learning for Fall 2020 reported isolation as an obstacle in Spring 2020 than students who opted for distance learning (Table 5c: 46% vs 38%, p = 0.1368). Internet access and connectivity issues were highest among students with low pre-pandemic attendance (Table 5c: 47%, p = 0.0124), as well as Black and other racial group students, though not significant (Table 5a: 40% and 40%, p = 0.5385). Across racial strata, Hispanic students reported the least difficulty communicating with teachers (Table 5a: 20%) as compared to the other students (34 - 35%, p = 0.0145).

Black students were most heavily affected by a lack of technology / devices (Table 5a: 14% compared to overall sample at 8%, p = 0.0471). Similarly, Grade 12 students (Table 5b: 15%, p = 0.0118), FRL students (Table 5a: 11%, p = 0.0271), and low attendance students (Table 5c: 12.22%, p = 0.1067) reported more obstacles with technology than the sample at

large. Low attendance students also reported significantly more issues with tools / technology not working as expected than their counterparts (Table 5c: 36% vs 24%, p = 0.0085).

Approximately one-fourth (27%) of the sample reported having no quiet place to learn in their home (Table 5). These results were significant when stratified by race, gender, FRL status, and attendance records. Students of the Other race category (Table 5a: 37%, p = 0.0063), female students (Table 5b: 30%, p = 0.0168), FRL-eligible students (Table 5a: 32%, p = 0.0120), and low attendance students (Table 5c: 36%, p = 0.0415) experienced significantly more issues with this obstacle.

Only 10% of respondents (59 students) provided additional comments in the "Other" response option (Table 5). Common themes among these responses include difficulty focusing (13 responses), a lack of motivation (13), the online format being more difficult to learn from (10), a lack of structure at home (9), a lack of time due to other responsibilities at work or at home (7), depression and anxiety (6), and too many assignments (5).

Research Question 1: Additional Resources for Online Learning

A small portion (15%) of the overall sample reported no additional resources or services needed from their school and/or teachers to help with online learning (Table 6). The most commonly requested resources or services were more extra credit opportunities (Table 6: 44%), more clear communication from teachers (43%), a more lenient grading policy (39%), more group interaction with other students (23%), and more structure (23%). Female (Table 6b: 49%, p = 0.0002) and FRL-eligible (Table 19: 49%, p = 0.0257) students requested more extra credit opportunities significantly more than their counterparts. Clear communication from teachers was most highly requested by white students (Table 19: 48%, p = 0.0039), Grade 12 students (Table 6b: 50%, p = 0.0338), and students with low attendance (Table 6c: 45%, p = 0.5663). Black

students were the least likely to request a more lenient grading policy, with just 23% of students suggesting the need for this resource (Table 19: $p = 0.0100$). Grade 12 (Table 6b: 30%) and Grade 9 (28%) students noted the greatest desire for more group interaction with other students ($p = 0.0125$), while more structure was requested most frequently by Grade 11 students (30%, $p = 0.0232$).

Low attendance students were the only strata to request more summer learning opportunities at a significant level (Table 6c: 13%, $p = 0.0023$), at more than twice the overall sample's rate of 6%. In terms of internet connectivity, Grade 12 students requested this resource significantly more than other grade levels, at 19% (Table 6b: $p = 0.0051$), compared to the study sample proportion of 10%. More devices and technology (Table 6b: 9%, $p = 0.0478$), clear communication from administration (15%, $p = 0.0407$), recorded lessons (24%, $p = 0.0427$), academic / college counseling services or resources (12%, $p = 0.0026$), and mental health counseling services or resources (16%, $p = 0.0008$) were requested significantly more by female than by male students. More academic / college counseling services or resources were significantly more requested by honors students (Table 6c: 12%, $p = 0.0350$) than non-honors eligible students. Significant differences were also seen across grade-level for more academic / college counseling services or resources (Table 6b: Grade 12 26% vs Grade 9 1%, $p < 0.0001$) and more mental health counseling services or resources (Grade 12 21% vs Grade 9 10%, $p = 0.0253$).

Only six students (1% of the study sample) provided additional comments in the "Other" response option (Table 6). A common theme among these responses was the request for teachers to reduce the workload being given in the online format.

Research Question 2: What is the relationship between pre-pandemic attendance and GPA with educational concerns regarding COVID-19?

The unadjusted models indicate that non-honors students had 1.5 [95% CI: 1.1, 2.0, p = 0.0053] times higher odds of being (somewhat, very, or extremely) worried about grades and graduation upon the onset of the pandemic; 1.1 [95% CI: 0.8, 1.5, p = 0.5280] times odds of believing they could excel academically during the coronavirus pandemic; and 1.5 [95% CI: 1.1, 2.0, p = 0.0082] times odds of believing that they have done a good job adjusting to online learning than honors students (Table 7).

The confounding assessment determined the inclusion of race/ethnicity, gender, grade level, and FRL status in the adjusted models. When adjusting for all covariates, non-honors students had 1.6 [95% CI: 1.2, 2.2, p = 0.0026] times higher odds of being (somewhat, very, or extremely) worried about grades and graduation upon the onset of the pandemic; 1.1 [95% CI: 0.8, 1.5, p = 0.5352] times odds of believing they could excel academically during the coronavirus pandemic; and 1.5 [95% CI: 1.1, 2.1, p = 0.0068] times odds of believing that they have done a good job adjusting to online learning than honors students (Table 7).

Unadjusted models also indicate that low attendance students had 1.6 [95% CI: 1.1, 2.4, p = 0.0267] times higher odds of being (somewhat, very, or extremely) worried about grades and graduation upon the onset of the pandemic; 1.4 [95% CI: 0.9, 2.2, p = 0.0969] times odds of believing they could excel academically during the coronavirus pandemic; and 1.6 [95% CI: 1.1, 2.5, p = 0.0224] times odds of believing that they have done a good job adjusting to online learning than students with regular attendance (Table 8).

When adjusting for all covariates, low attendance students had 1.6 [95% CI: 1.1, 2.4, p = 0.0241] times higher odds of being (somewhat, very, or extremely) worried about grades and

graduation upon the onset of the pandemic; 1.4 [95% CI: 0.9, 2.2, p = 0.0974] times odds of believing they could excel academically during the coronavirus pandemic; and 1.7 [95% CI: 1.1, 2.5, p = 0.0219] times odds of believing that they have done a good job adjusting to online learning than students with regular attendance (Table 8).

Research Question 3: What is the association between student perception of the pandemic in Spring 2020 and the decision to attend school virtually or in-person for Fall 2020?

The crude models indicate that students who were very worried about grades and/or high school graduation at the start of the pandemic had 1.6 [95% CI: 0.9, 3.2] times the odds of selecting distance learning for the 2020-2021 school year compared to students who were not worried at all. Students who strongly felt they had adjusted well to online learning had 1.0 [95% CI: 0.5, 1.8] times the odds of selecting distance learning for the 2020-2021 school year compared to students who strongly felt they did not adjust well to virtual learning in Spring 2020 (Table 9).

The confounding assessment determined the inclusion of race/ethnicity, gender, grade level, and FRL status in the adjusted models. When adjusting for all covariates, the measures of association did not differ and remained non-significant (Table 9). Because neither association was independently statistically significant with the outcome, interaction of the two exposures was not examined.

IV. Discussion

This cross-sectional study contributes to limited research examining the differential effect of the COVID-19 pandemic and transition to virtual learning on education experiences and concerns of diverse high school students in the United States. While students largely felt supported by their teachers and school administrators, and expressed academic confidence in virtual learning, many students still expressed worry about their academic and future trajectory. Concern surrounding grades and high school graduation was more prevalent among student responses than concern about college admissions and enrollment, which may reflect the fact that students did not anticipate the extent of the pandemic and its possible long-term effects early in the pandemic upon initial school building closures. Across all education concerns, challenges, and obstacles, differences by demographic characteristics were identified.

There are several unique themes and potential impacts on the academic achievement gap to consider. One pattern that emerged through the survey responses is that Black students express less concern with the pandemic and associated stressors than students of other racial strata. Black students expressed more confidence with the transition to online learning and were more satisfied with teachers, school staff, and counsellors. These students also had the least number of requests for accommodations and leniency and reported less obstacles than their peers. These results are surprising, considering the pandemic's disproportionately large effect on Black populations [34,35]. The syndemic effect of racism and its historical and present-day manifestations (redlining, lack of Medicaid expansion, medical bias, etc.) with underlying health conditions has exacerbated the worst effects of COVID-19 on Black communities in the United States [36]. With racism and additional intersecting systems of oppression impacting Black students today, these results require further inquiry. While Black students may have indicated

they fared the transition to online learning better than their peers, this example of resilience cannot be highlighted without naming and acknowledging the oppressive systems of structural racism that these youth have navigated through their lives. Valorizing Black students for navigating inequities with grace and resilience without identifying and working to mitigate the effects of additional obstacles they have encountered minimizes the impact of structural racism and can lead to complacency [37]. In addition, Black students may have requested less resources during the pandemic because they do not expect school systems or other institutions to support them through crises. Acknowledging these complexities, particular attention and care must be brought to racialized and disenfranchised students in the US to ensure that they needs are truly being met during and beyond this essential time.

Hispanic students and students of other racial/ethnic groups will also require targeted support, as these students expressed more worry about grades, graduation, career, and college admissions, as well as less academic confidence and comfort with the adjustment to online learning than their white peers. Hispanic populations in the US have similarly been disproportionately impacted by the pandemic's effects, being overrepresented in cases and deaths and economic effects. These students require specialized attention to offset the effects of the widening academic achievement gap.

Female students expressed more academic confidence, better adjustment to online learning, greater satisfaction with support from teachers, guidance counselors, and school administrators, but also more academic worry and concern for their future than their male peers. Female students reported significantly more isolation from other students and requested more resources from the school, including mental health counseling, college counseling, extra credit opportunities, and recorded lessons. This could indicate less proactive concern or action taken by

male students. Male students are already known to be more susceptible to less virtual instruction time across subject areas than their female peers [10]. As resources are provided to meet requests for female students, special probing for male students may be required to understand their additional needs as well.

Across grade levels, students in higher grades expressed increasingly more worry about grades, college, and their careers, despite similar levels of academic confidence and comfort with the adjustment to online learning. Grade 12 students reported significantly more technical and connectivity issues than their peers. Older students who may have since graduated and entered the workforce or college may require additional support navigating these transitions through and beyond the pandemic. Colleges and universities could benefit from additional student outreach programs to ensure the academic success and mental wellbeing of students.

Students eligible for free and reduced lunch indicated more academic, college, and career worry than their peers as well as less academic confidence and significantly less comfort adjusting to online learning. Interestingly, these students express significantly more satisfaction with guidance counselors than their peers, perhaps a testament to outreach efforts or counseling services. FRL students indicate significantly more issues with technology and no quiet place to learn at home, and request more extra credit opportunities. Students from lower socioeconomic statuses have been found to be more susceptible to less virtual instructional time across subject areas than their peers of higher socioeconomic status [10]. Therefore, these students may require additional tutoring or attention upon the full return to in-person instruction to reduce the pandemic's impact on learning loss.

Another interesting finding is that honors students report significantly more satisfaction with teachers, guidance counselors, and administration than their non-honors peers. The

relationship between supportive relationships with adults in schools and higher levels of psychological wellness, school engagement, and academic outcomes among students has been found across various student age levels and races [38,39]. This association highlights the emphasis that should be placed on developing and strengthening these relationships as best as possible through virtual engagement and upon the full return to in-person instruction. Honors students also report less academic worry and more confidence than their non-honors counterparts.

The association between pre-pandemic attendance and GPA with education concerns highlights the greater concerns that these students entered the pandemic with, as compared to students with a stronger academic record. Students who were struggling with attendance before the pandemic also indicated significantly more internet access issues, technology issues, and no quiet place to learn in their homes upon the transition to online learning. Therefore, these barriers may lead to these low attendance students to become "virtual dropouts" and fall further behind in their academic trajectory. This may increase the academic achievement gap that presently exists in the United States, therefore additional resources and attention must be channeled towards these students to recover from this academic loss.

The exploratory analysis examining whether academic confidence and worry in Spring 2020 were related to learning modality selection in Fall 2020, produced inconclusive results. This may have been due to the timing of the survey, which was at the onset of the pandemic when most did not predict the long-lasting impact. In addition, the survey questions did not ask directly about learning modality preferences, so other possible factors influencing this decision may be missing from consideration. This indicates the need for a more in-depth investigation

into factors that influenced student or parent/guardian decisions for distance or in-person learning.

A. Strengths and Limitations

There are at least three strengths of this study. First, this study was conducted among an understudied population of racially/ethnically and socioeconomically diverse adolescents; much of the existing literature around COVID-19 is focused on adult populations. Second, the geographic focus is of semi-rural areas in the South provides insight about regions that are generally overlooked in research. Rurality influences the academic achievement gap; therefore, it is imperative to understand the differential educational effects of the pandemic on the development of adolescents. Finally, the timeliness of the survey being administered shortly after school closures in spring of 2020 provides a rare and valuable insight into adolescent impressions and experiences of the pandemic at its onset.

Despite these strengths, there are at least four limitations to the study design and data collected through this research. First, the cross-sectional nature of the study limits the causal inference that can be drawn from results and conclusions [40]. The results from this study can represent only a glimpse into the experiences of high school students at the start of the pandemic. However, the conclusions drawn from this study remain a valuable source of insight on adolescent populations that are often overlooked in academic research.

Second, at the time of the survey distribution, few expected the COVID-19 pandemic to have as great and long-lasting effects as it has. As students were reporting their concerns with graduation and plans for their future, many may not have expected their schooling to be impacted for over a year later. Regardless, the obstacles and desired resources reported by students provide

relevant insight into the needs of high school students, and particularly vulnerable populations, in this pandemic.

Third, geographic limitations of the study sample may reduce generalizability to other populations. The students in this semi-rural public school district in the southern part of the United States may have access to different resources and experience unique obstacles as compared to high school students in other parts of the country. However, semi-rural adolescent populations are largely overlooked, as academic research tends to focus on urban adolescent populations; therefore, this study provides beneficial understanding of this and similar populations.

Finally, concerns with bias introduced as a result of the quality of education data provided by the school district exist. Due to the abrupt transition to online learning, attendance records were not provided to researchers beyond March 16, 2020. The study therefore lacks data related to pandemic attendance, which may heavily impact learning loss among students. In addition, GPA measures may be skewed, as teachers were more lenient in their grading upon the transition to online learning.

B. Future Research

This study can inform future research, particularly surrounding student and parent/guardian decisions to attend school virtually or in-person, and the long-term effects on academic performance, socioemotional learning, and mental health. Further research into the effects of distance learning on existing and growing disparities will benefit existing and future efforts to minimize the academic achievement gap in the United States.

Factors influencing learning modality warrant research as interventions to mitigate the academic achievement gap are developed. This study revealed that of students who reported

social isolation at the onset of the pandemic, more opted for in-person learning in Fall 2020 than distance learning. Social isolation is one potential factor to examine, as well as fear of COVID-19, mental health, technology access and barriers, and caretaking or work responsibilities of students. An investigation of parent/guardian preferences for instructional format at a large public school district in Texas revealed that parents of older students preferred a hybrid format to traditional instruction compared to caregivers of elementary students and that concerns about child health and safety were the strongest predictors of caregiver preference [41]. Particularly for older adolescent students, the influence of parent/guardian preference is an important factor for future research to investigate.

The conclusions of this study can inform future longitudinal research of the academic achievement gap to inform interventions for future potential pandemics and crises. Due to additional technological and internet connectivity issues, semi-rural areas will need to design interventions to combat the brain drain of training and development, talent, skills, and education that will occur as a result of the dependence on distance learning [8]. Education experts indicate that good intentions will not carry students through and beyond this pandemic alone; significant resources and interventions such as more school days, longer school days, or tutoring programs, may be necessary to bring disenfranchised students especially back to speed [42]. The development and strengthening of current interventions are also imperative.

C. Implications

This research provides stakeholders with insight into student concern about their education experiences and careers during and beyond the pandemic, as well as factors that influence these concerns and decisions about learning modality. Public schools bear a large burden of supporting youth in their development. The COVID-19 pandemic has highlighted the

need for restructuring these systems to adequately address growing inequities among our youth. Stakeholders across education, research, public health, and policy will need to coordinate to support healthier outcomes and future trajectories for our youth. The conclusions drawn from this study can inform interventions at the school, district, county, and state level to reduce the long-term impacts of learning loss from the pandemic and ensure sustainable and healthy trajectories for adolescents beyond high school graduation.

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VI. Tables

Table 1: Demographics characteristics of study sample, overall and by attendance status, honors status, and Fall 2020 learning modality (n = 666)														
	Overall Sample		**Standard Attendance**		**Low Attendance**		**Honors**		**Non-Honors**		**Distance Learner**		**In-Person Learner**	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Total	666	--	566	--	100	--	382	--	284	--	154	--	397	--
Race														
White	374	56.2	312	55.1	62	62.0	231	60.5	143	50.4	70	45.5	244	61.3
Hispanic	143	21.5	129	10.1	23	23.0	74	19.4	69	24.3	38	24.7	82	20.6
Black	86	12.9	77	13.6	9	9.0	39	10.2	47	16.6	32	20.8	38	9.6
Other	63	9.5	57	21.2	6	6.0	38	10.0	25	8.8	14	9.1	34	8.5
Gender														
Female	418	62.8	347	61.3	71	71.0	269	70.4	149	52.5	92	59.7	245	61.6
Male	248	37.2	219	38.7	29	29.0	113	29.6	135	47.5	62	40.3	153	38.4
Grade														
9th	210	31.5	176	31.1	34	34.0	105	27.5	105	37.0	57	37.0	153	38.4
10th	177	26.6	149	26.3	28	28.0	101	26.4	76	26.8	52	33.8	125	31.4
11th	165	24.8	143	25.3	22	22.0	94	24.6	71	25.0	45	29.2	120	30.2
12th	144	21.6	98	17.3	16	16.0	82	21.5	32	11.3	--	--	--	--
Free & Reduced Lunch Eligibility														
Yes	281	42.2	220	38.9	61	61.0	132	34.6	149	52.5	76	49.4	159	40.0
No	385	57.8	346	61.1	39	39.0	250	65.5	135	47.5	78	50.7	239	60.1
Attendance														
Standard	566	85.0	--	--	--	--	348	91.1	218	76.8	118	76.6	350	87.9
Low	100	15.0	--	--	--	--	34	8.9	66	23.2	36	23.4	48	12.1
GPA Honors Eligibility														
Yes	382	57.4	348	61.5	34	34.0	--	--	--	--	77	50.0	223	56.0
No	284	42.6	218	38.5	66	66.0	--	--	--	--	77	50.0	175	44.0

Table 2. Worry about Impact of the Coronavirus Pandemic (n = 666)		
Variable	**n (%)**	**Chi-Square p-value**
How worried are you about the impact of the coronavirus pandemic on each of the following?		
My grades and/or high school graduation		
Not at all or not too worried	262 (41.5)	**<0.0001**
Somewhat worried	162 (25.6)	
Very or extremely worried	208 (32.9)	
My college admissions and enrollment		
Not at all or not too worried	374 (59.7)	**<0.0001**
Somewhat worried	137 (21.9)	
Very or extremely worried	116 (18.5)	
My career trajectory and employment opportunities		
Not at all or not too worried	354 (56.1)	**<0.0001**
Somewhat worried	164 (26.0)	
Very or extremely worried	113 (17.9)	

Table 2a. Worry about Impact of the Coronavirus Pandemic Stratified by Race/Ethnicity and Free & Reduced Lunch Eligibility (n = 666)								
Variable	**White n (%)**	**Hispanic n (%)**	**Black n (%)**	**Other n (%)**	**Chi Square p-value**	**FRL n (%)**	**Non-FRL n (%)**	**Chi Square p-value**
How worried are you about the impact of the coronavirus pandemic on each of the following?								
My grades and/or high school graduation								
Not at all or not too worried	167 (46.5)	52 (38.8)	25 (32.5)	18 (29.0)	**0.0079**	99 (37.8)	163 (44.1)	0.0846
Somewhat worried	94 (26.2)	27 (20.2)	24 (31.2)	17 (27.4)		64 (24.4)	98 (26.5)	
Very or extremely worried	98 (27.3)	55 (41.0)	28 (36.4)	27 (43.6)		99 (37.8)	109 (29.5)	
My college admissions and enrollment								
Not at all or not too worried	228 (64.1)	71 (53.4)	46 (60.5)	29 (46.8)	**0.0120**	143 (54.8)	231 (63.1)	0.1071
Somewhat worried	78 (21.9)	28 (21.1)	12 (15.8)	19 (30.7)		65 (24.9)	72 (19.7)	
Very or extremely worried	50 (14.0)	34 (25.6)	18 (23.7)	14 (22.6)		53 (20.3)	63 (17.2)	
My career trajectory and employment opportunities								
Not at all or not too worried	217 (60.5)	68 (51.1)	40 (52.0)	29 (46.8)	0.1253	130 (49.8)	224 (60.5)	**0.0108**
Somewhat worried	90 (25.1)	38 (28.6)	18 (23.4)	18 (29.0)		72 (27.6)	92 (24.9)	
Very or extremely worried	52 (14.5)	27 (20.3)	19 (24.7)	15 (24.2)		59 (22.6)	54 (14.6)	

Table 2b. Worry about Impact of the Coronavirus Pandemic Stratified by Grade Level and Gender (n = 666)								
Variable	**Grade 9 n (%)**	**Grade 10 n (%)**	**Grade 11 n (%)**	**Grade 12 n (%)**	**Chi Square p-value**	**Female n (%)**	**Male n (%)**	**Chi Square p-value**
How worried are you about the impact of the coronavirus pandemic on each of the following?								
My grades and/or high school graduation								
Not at all or not too worried	81 (41.12)	77 (46.67)	67 (41.88)	37 (33.64)		154 (38.69)	108 (46.15)	
Somewhat worried	54 (27.41)	39 (23.64)	46 (28.75)	23 (20.91)	0.0799	103 (25.88)	59 (25.21)	0.1306
Very or extremely worried	62 (31.47)	49 (29.70)	47 (29.38)	50 (45.45)		141 (35.43)	67 (28.63)	
My college admissions and enrollment								
Not at all or not too worried	156 (80.0)	106 (64.2)	68 (43.0)	44 (40.4)		225 (57.0)	149 (64.2)	
Somewhat worried	23 (11.8)	43 (26.1)	45 (28.5)	26 (23.9)	**<0.0001**	88 (22.3)	49 (21.1)	0.115
Very or extremely worried	16 (8.2)	16 (9.7)	45 (28.5)	39 (35.8)		82 (20.8)	34 (14.7)	
My career trajectory and employment opportunities								
Not at all or not too worried	142 (72.5)	101 (61.2)	74 (46.3)	37 (33.6)		212 (53.3)	142 (61.0)	
Somewhat worried	33 (16.8)	45 (27.3)	52 (32.5)	34 (30.9)	**<0.0001**	109 (27.4)	55 (23.6)	0.1654
Very or extremely worried	21 (10.7)	19 (11.5)	34 (21.3)	39 (35.5)		77 (19.4)	36 (15.5)	

Table 2c. Worry about Impact of the Coronavirus Pandemic Stratified by Attendance, Honors Eligibility, and Learning Modality (n = 666)									
Variable	**Standard Attendance n (%)**	**Low Attendance n (%)**	**Chi Square p-value**	**Honors n (%)**	**Non-Honors p-value**	**Chi-square p-value**	**Distance n (%)**	**In-Person n (%)**	**Chi Square p-value**
How worried are you about the impact of the coronavirus pandemic on each of the following?									
My grades and/or high school graduation									
Not at all or not too worried	232 (42.9)	30 (33.0)		168 (45.8)	94 (35.5)		59 (40.7)	166 (44.0)	
Somewhat worried	140 (25.9)	22 (24.2)	0.0769	92 (25.1)	70 (26.4)	**0.0202**	36 (24.8)	103 (27.3)	0.4287
Very or extremely worried	169 (31.2)	39 (42.9)		107 (29.2)	101 (38.1)		50 (34.5)	108 (28.7)	
My college admissions and enrollment									
Not at all or not too worried	323 (60.3)	51 (56.0)		220 (60.4)	154 (58.6)		91 (62.8)	239 (64.1)	
Somewhat worried	121 (22.6)	16 (17.6)	0.0961	82 (22.5)	55 (20.9)	0.5263	31 (21.4)	80 (21.5)	0.9216
Very or extremely worried	92 (17.2)	24 (26.4)		62 (17.0)	54 (20.5)		23 (15.9)	54 (14.5)	
My career trajectory and employment opportunities									
Not at all or not too worried	308 (57.0)	46 (50.6)		207 (56.6)	147 (55.5)		85 (58.6)	232 (61.7)	
Somewhat worried	142 (26.3)	22 (24.2)	0.1394	98 (26.8)	66 (24.9)	0.6098	36 (24.8)	94 (25.0)	0.6236
Very or extremely worried	90 (16.7)	23 (25.3)		61 (16.7)	52 (19.6)		24 (16.6)	50 (13.3)	

Table 3. Academic Confidence and Adjustment to Online Learning (n = 666)		
Variable	**n (%)**	**Chi-Square p-value**
How much do you agree with the following statement?		
I believe that I can excel academically during the coronavirus pandemic		
Strongly or somewhat disagree	237 (37.6)	**<0.0001**
Neither agree nor disagree	123 (19.5)	
Somewhat or strongly agree	270 (42.9)	
I have done a good job adjusting to online learning		
Strongly or somewhat disagree	257 (40.7)	**<0.0001**
Neither agree nor disagree	82 (13.0)	
Somewhat or strongly agree	292 (46.3)	

Table 3a. Academic Confidence and Adjustment to Online Learning Stratified by Race/Ethnicity and Free & Reduced Lunch Eligibility (n = 666)								
Variable	**White n (%)**	**Hispanic n (%)**	**Black n (%)**	**Other n (%)**	**Chi Square p-value**	**FRL n (%)**	**Non-FRL n (%)**	**Chi Square p-value**
How much do you agree with the following statement?								
I believe that I can excel academically during the coronavirus pandemic								
Strongly or somewhat disagree	128 (35.8)	57 (42.5)	24 (31.2)	28 (45.9)	**0.0071**	102 (38.9)	135 (36.7)	0.0771
Neither agree nor disagree	65 (18.2)	32 (23.9)	10 (13.0)	16 (26.2)		60 (22.9)	63 (17.1)	
Somewhat or strongly agree	165 (46.1)	45 (33.6)	43 (55.8)	17 (27.9)		100 (38.2)	170 (46.2)	
I have done a good job adjusting to online learning								
Strongly or somewhat disagree	140 (39.0)	58 (43.0)	30 (39.0)	29 (48.3)	0.3788	109 (41.8)	148 (40.0)	**0.0445**
Neither agree nor disagree	48 (13.4)	18 (13.3)	6 (7.8)	10 (16.7)		43 (16.5)	39 (10.5)	
Somewhat or strongly agree	171 (47.6)	59 (43.7)	41 (53.3)	21 (35.0)		109 (41.8)	183 (49.5)	

Table 3b. Academic Confidence and Adjustment to Online Learning Stratified by Grade Level and Gender (n = 666)								
Variable	**Grade 9 n (%)**	**Grade 10 n (%)**	**Grade 11 n (%)**	**Grade 12 n (%)**	**Chi Square p-value**	**Female n (%)**	**Male n (%)**	**Chi Square p-value**
How much do you agree with the following statement?								
I believe that I can excel academically during the coronavirus pandemic								
Strongly or somewhat disagree	76 (38.4)	60 (36.4)	64 (40.8)	37 (33.6)		146 (36.7)	91 (39.2)	
Neither agree nor disagree	39 (19.7)	36 (21.8)	26 (16.6)	22 (20.0)	0.8637	76 (19.1)	47 (20.3)	0.6629
Somewhat or strongly agree	83 (41.9)	69 (41.8)	67 (42.7)	51 (46.4)		176 (44.2)	94 (40.5)	
I have done a good job adjusting to online learning								
Strongly or somewhat disagree	79 (40.1)	63 (38.2)	73 (45.9)	42 (38.2)		153 (38.4)	104 (44.6)	
Neither agree nor disagree	27 (13.7)	23 (13.9)	18 (11.3)	14 (12.7)	0.8398	51 (12.8)	31 (13.3)	0.2430
Somewhat or strongly agree	91 (46.2)	79 (47.9)	68 (42.8)	54 (49.1)		194 (48.7)	98 (42.1)	

Table 3c. Academic Confidence and Adjustment to Online Learning Stratified by Attendance, Honors Eligibility, and Learning Modality (n = 666)									
Variable	**Standard Attendance n (%)**	**Low Attendance n (%)**	**Chi Square p-value**	**Honors n (%)**	**Non-Honors p-value**	**Chi-square p-value**	**Distance n (%)**	**In-Person n (%)**	**Chi Square p-value**
How much do you agree with the following statement?									
I believe that I can excel academically during the coronavirus pandemic									
Strongly or somewhat disagree	195 (36.3)	42 (45.7)		126 (34.4)	111 (42.1)		56 (38.4)	144 (38.5)	
Neither agree nor disagree	108 (20.1)	15 (16.3)	0.2229	63 (17.2)	60 (22.7)	**0.0042**	29 (19.9)	72 (19.3)	0.9870
Somewhat or strongly agree	235 (43.7)	35 (38.0)		177 (48.4)	93 (35.2)		61 (41.8)	158 (42.3)	
I have done a good job adjusting to online learning									
Strongly or somewhat disagree	212 (39.3)	45 (49.5)		130 (35.4)	127 (48.1)		56 (38.6)	159 (42.3)	
Neither agree nor disagree	77 (14.3)	5 (5.5)	**0.0364**	48 (13.1)	34 (12.9)	**0.0036**	15 (10.3)	53 (14.1)	0.2555
Somewhat or strongly agree	251 (46.5)	41 (45.1)		189 (51.5)	103 (39.0)		74 (51.0)	164 (43.6)	

Table 4. Satisfaction with School Responsiveness and Support (n = 666)		
Variable	**n (%)**	**Chi-Square p-value**
How satisfied are you with the responsiveness and support provided by each of the following people at your school?		
Your teachers		
Extremely or somewhat dissatisfied	71 (11.2)	**<0.0001**
Neither satisfied nor dissatisfied	145 (22.9)	
Somewhat or extremely satisfied	416 (65.8)	
Guidance counselors		
Extremely or somewhat dissatisfied	85 (13.5)	**<0.0001**
Neither satisfied nor dissatisfied	267 (42.3)	
Somewhat or extremely satisfied	280 (44.3)	
Principals and/or school administrators		
Extremely or somewhat dissatisfied	68 (10.8)	**<0.0001**
Neither satisfied nor dissatisfied	241 (38.2)	
Somewhat or extremely satisfied	322 (51.0)	

Table 4a. Satisfaction with School Responsiveness and Support Stratified by Race/Ethnicity and Free & Reduced Lunch Eligibility (n = 666)								
Variable	**White n (%)**	**Hispanic n (%)**	**Black n (%)**	**Other n (%)**	**Chi Square p-value**	**FRL n (%)**	**Non-FRL n (%)**	**Chi Square p-value**
How satisfied are you with the responsiveness and support provided by each of the following people at your school?								
Your teachers								
Extremely or somewhat dissatisfied	44 (12.3)	12 (8.9)	6 (7.8)	9 (14.5)	0.2805	23 (8.8)	48 (13.0)	0.1539
Neither satisfied nor dissatisfied	79 (22.1)	40 (29.6)	14 (18.2)	12 (19.4)		67 (25.5)	78 (21.1)	
Somewhat or extremely satisfied	235 (65.6)	83 (61.5)	57 (74.0)	41 (66.1)		173 (65.8)	243 (65.9)	
Guidance counselors								
Extremely or somewhat dissatisfied	48 (13.4)	19 (14.1)	10 (13.0)	8 (12.9)	0.6743	27 (10.3)	58 (15.7)	**0.0394**
Neither satisfied nor dissatisfied	159 (44.4)	58 (43.0)	26 (33.8)	24 (38.7)		106 (40.3)	161 (43.6)	
Somewhat or extremely satisfied	151 (42.2)	58 (43.0)	41 (53.3)	30 (48.4)		130 (49.4)	150 (40.7)	
Principals and/or school administrators								
Extremely or somewhat dissatisfied	40 (11.2)	17 (12.7)	5 (6.5)	6 (9.7)	0.3846	25 (9.5)	43 (11.7)	0.6403
Neither satisfied nor dissatisfied	135 (37.7)	58 (43.3)	25 (32.5)	23 (37.1)		104 (39.5)	137 (37.2)	
Somewhat or extremely satisfied	183 (51.1)	59 (44.0)	47 (61.0)	33 (53.2)		134 (51.0)	188 (51.1)	

Table 4b. Satisfaction with School Responsiveness and Support Stratified by Grade Level and Gender (n = 666)								
Variable	**Grade 9 n (%)**	**Grade 10 n (%)**	**Grade 11 n (%)**	**Grade 12 n (%)**	**Chi Square p-value**	**Female n (%)**	**Male n (%)**	**Chi Square p-value**
How satisfied are you with the responsiveness and support provided by each of the following people at your school?								
Your teachers								
Extremely or somewhat dissatisfied	29 (14.7)	14 (8.5)	18 (11.3)	10 (9.1)	**0.0101**	39 (9.8)	32 (13.7)	0.1515
Neither satisfied nor dissatisfied	53 (26.8)	46 (28.1)	32 (20.0)	14 (12.7)		87 (21.8)	58 (24.9)	
Somewhat or extremely satisfied	116 (58.6)	104 (63.4)	110 (68.8)	86 (78.2)		273 (68.4)	143 (61.4)	
Guidance counselors								
Extremely or somewhat dissatisfied	26 (13.2)	19 (11.5)	23 (14.4)	17 (15.5)	0.0545	48 (12.0)	37 (15.9)	**0.0020**
Neither satisfied nor dissatisfied	91 (46.2)	78 (47.3)	67 (41.9)	31 (28.2)		153 (38.4)	114 (48.9)	
Somewhat or extremely satisfied	80 (40.6)	68 (41.2)	70 (43.8)	62 (56.4)		198 (49.6)	82 (35.2)	
Principals and/or school administrators								
Extremely or somewhat dissatisfied	24 (12.2)	14 (8.5)	21 (13.1)	9 (8.3)	**0.0012**	31 (7.8)	37 (16.0)	**0.0002**
Neither satisfied nor dissatisfied	90 (45.5)	67 (40.9)	59 (36.9)	25 (22.9)		143 (35.8)	98 (42.2)	
Somewhat or extremely satisfied	84 (42.4)	83 (50.6)	80 (50.0)	75 (68.8)		225 (56.4)	97 (41.8)	

Table 4c. Satisfaction with School Responsiveness and Support Stratified by Attendance, Honors Eligibility, and Learning Modality (n = 666)									
Variable	**Standard Attendance n (%)**	**Low Attendance n (%)**	**Chi Square p-value**	**Honors n (%)**	**Non-Honors p-value**	**Chi-square p-value**	**Distance n (%)**	**In-Person n (%)**	**Chi Square p-value**
How satisfied are you with the responsiveness and support provided by each of the following people at your school?									
Your teachers									
Extremely or somewhat dissatisfied	62 (11.5)	9 (9.8)		40 (10.9)	31 (11.7)		13 (9.0)	48 (12.7)	
Neither satisfied nor dissatisfied	119 (22.0)	26 (28.3)	0.4120	63 (17.2)	82 (30.8)	**0.0002**	45 (31.0)	86 (22.8)	0.1096
Somewhat or extremely satisfied	359 (66.5)	57 (62.0)		263 (71.9)	153 (57.5)		87 (60.0)	243 (64.5)	
Guidance counselors									
Extremely or somewhat dissatisfied	69 (12.8)	16 (17.6)		35 (9.6)	50 (18.8)		16 (11.0)	52 (13.8)	
Neither satisfied nor dissatisfied	235 (43.4)	32 (35.2)	0.2440	157 (42.9)	110 (41.4)	**0.0026**	75 (51.7)	161 (42.7)	0.1757
Somewhat or extremely satisfied	237 (43.8)	43 (47.3)		174 (47.5)	106 (39.9)		54 (37.2)	164 (43.5)	
Principals and/or school administrators									
Extremely or somewhat dissatisfied	58 (10.8)	10 (10.9)		23 (6.3)	45 (17.0)		15 (10.3)	44 (11.7)	
Neither satisfied nor dissatisfied	205 (38.0)	36 (39.1)	0.9763	145 (39.6)	96 (36.2)	**0.0001**	65 (44.5)	151 (40.2)	0.6491
Somewhat or extremely satisfied	276 (51.2)	46 (50.0)		198 (54.1)	124 (46.8)		66 (45.2)	181 (48.1)	

Table 5. Obstacles during Online Learning (n = 666)		
Variable	**n (%)**	**Chi-Square p-value**
Have you experienced any of the following obstacles during online learning? [Select all that apply]		
Internet access / connectivity issues	220 (35.0)	**<0.0001**
Feeling isolated from other students	277 (44.1)	**0.0031**
Difficulty communicating with teachers	199 (31.7)	**<0.0001**
Tools / technology not working as expected	160 (25.5)	**<0.0001**
Lack of technology / devices (e.g., laptop, tablet)	50 (8.0)	**<0.0001**
Unclear expectations from teachers	311 (49.5)	0.0573
No quiet place to learn in my home	168 (26.8)	**<0.0001**
Other	59 (9.4)	**<0.0001**
Have not experienced any obstacles	118 (18.8)	**<0.0001**

Table 5a. Obstacles during Online Learning Stratified by Race/Ethnicity and Free & Reduced Lunch Eligibility (n = 666)								
Variable	**White n (%)**	**Hispanic n (%)**	**Black n (%)**	**Other n (%)**	**Chi Square p-value**	**FRL n (%)**	**Non-FRL n (%)**	**Chi Square p-value**
Have you experienced any of the following obstacles during online learning? [Select all that apply]								
Internet access / connectivity issues	119 (33.5)	45 (33.6)	31 (40.3)	25 (40.3)	0.5385	89 (34.4)	131 (35.5)	0.7685
Feeling isolated from other students	169 (47.6)	53 (39.6)	25 (32.5)	30 (48.4)	0.0555	109 (42.1)	168 (45.5)	0.3922
Difficulty communicating with teachers	124 (34.9)	27 (20.2)	26 (33.8)	22 (35.5)	**0.0145**	73 (28.2)	126 (34.2)	0.114
Tools / technology not working as expected	98 (27.6)	30 (22.4)	16 (20.8)	16 (25.8)	0.4901	66 (25.5)	94 (25.8)	0.9981
Lack of technology / devices (e.g., laptop, tablet)	20 (5.6)	12 (9.0)	11 (14.3)	7 (11.3)	**0.0471**	28 (10.8)	22 (6.0)	**0.0271**
Unclear expectations from teachers	186 (52.4)	55 (41.0)	34 (44.2)	36 (58.1)	0.0521	125 (48.3)	186 (50.4)	0.5968
No quiet place to learn in my home	93 (26.2)	42 (31.3)	10 (13.0)	23 (37.1)	**0.0063**	83 (32.1)	85 (23.0)	**0.012**
Other	39 (11.0)	12 (9.0)	2 (2.6)	6 (9.7)	0.1530	19 (7.4)	40 (10.8)	0.1384
Have not experienced any obstacles	62 (17.5)	30 (22.4)	19 (24.7)	7 (11.3)	0.1340	53 (20.5)	65 (17.6)	0.3684

Table 5b. Obstacles during Online Learning Stratified by Grade Level and Gender (n = 666)								
Variable	**Grade 9 n (%)**	**Grade 10 n (%)**	**Grade 11 n (%)**	**Grade 12 n (%)**	**Chi Square p-value**	**Female n (%)**	**Male n (%)**	**Chi Square p-value**
Have you experienced any of the following obstacles during online learning? [Select all that apply]								
Internet access / connectivity issues	72 (36.7)	58 (35.6)	49 (30.8)	41 (37.3)	0.6248	143 (36.0)	77 (33.3)	0.4961
Feeling isolated from other students	78 (39.8)	69 (42.3)	80 (50.3)	50 (45.5)	0.2355	191 (48.1)	86 (37.2)	**0.0081**
Difficulty communicating with teachers	58 (29.6)	52 (31.9)	48 (30.2)	41 (37.3)	0.5416	132 (33.3)	67 (29.0)	0.2702
Tools / technology not working as expected	51 (26.0)	33 (20.3)	39 (24.5)	37 (33.6)	0.0974	110 (27.7)	50 (21.7)	0.0927
Lack of technology / devices (e.g., laptop, tablet)	10 (5.1)	11 (6.8)	12 (7.6)	17 (15.5)	**0.0118**	36 (9.1)	14 (6.1)	0.1794
Unclear expectations from teachers	93 (47.5)	82 (50.3)	73 (45.9)	63 (57.3)	0.2782	203 (51.1)	108 (46.8)	0.2897
No quiet place to learn in my home	39 (19.9)	47 (28.8)	48 (30.2)	34 (30.9)	0.0723	119 (30.0)	49 (21.2)	**0.0168**
Other	19 (9.7)	8 (4.9)	19 (12.0)	13 (11.8)	0.1189	36 (9.1)	23 (10.0)	0.7128
Have not experienced any obstacles	36 (18.4)	36 (22.1)	29 (18.2)	17 (15.5)	0.5689	64 (16.1)	54 (23.4)	**0.0248**

Table 5c. Obstacles during Online Learning Stratified by Attendance, Honors Eligibility, and Learning Modality (n = 666)									
Variable	**Standard Attendance n (%)**	**Low Attendance n (%)**	**Chi Square p-value**	**Honors n (%)**	**Non-Honors p-value**	**Chi-square p-value**	**Distance n (%)**	**In-Person n (%)**	**Chi Square p-value**
Have you experienced any of the following obstacles during online learning? [Select all that apply]									
Internet access / connectivity issues	178 (33.1)	42 (46.7)	**0.0124**	130 (35.5)	90 (34.4)	0.7622	55 (37.9)	124 (33.2)	0.3139
Feeling isolated from other students	236 (43.9)	41 (45.6)	0.7651	177 (48.4)	100 (38.2)	**0.0112**	56 (38.6)	171 (45.8)	0.1368
Difficulty communicating with teachers	170 (31.6)	29 (32.2)	0.9063	117 (32.0)	82 (31.3)	0.8589	42 (29.0)	116 (31.1)	0.6358
Tools / technology not working as expected	127 (23.6)	33 (36.7)	**0.0085**	96 (26.3)	64 (24.4)	0.6093	40 (27.6)	83 (22.3)	0.2002
Lack of technology / devices (e.g., laptop, tablet)	39 (7.3)	11 (12.2)	0.1067	29 (7.9)	21 (8.0)	0.9666	10 (6.9)	23 (6.2)	0.7599
Unclear expectations from teachers	264 (49.1)	47 (52.2)	0.5799	185 (50.6)	126 (48.1)	0.544	72 (49.7)	176 (47.2)	0.6134
No quiet place to learn in my home	136 (25.3)	32 (35.6)	**0.0415**	102 (27.9)	66 (25.2)	0.4547	32 (22.1)	102 (27.4)	0.2182
Other	49 (9.1)	10 (11.1)	0.5466	32 (8.7)	27 (10.3)	0.5082	12 (8.3)	34 (9.1)	0.763
Have not experienced any obstacles	107 (19.9)	11 (12.2)	0.0848	66 (18.0)	52 (19.9)	0.5660	30 (20.7)	71 (19.0)	0.6695

Table 6. Additional Resources or Services (n = 666)		
Variable	**n (%)**	**Chi-Square p-value**
What additional resources or services could your school and/or teachers provide to help you with online learning? [Select all that apply]		
More lenient grading policy	242 (38.7)	**<0.0001**
More extra credit opportunities	274 (43.8)	**0.0018**
More summer learning opportunities	35 (5.6)	**<0.0001**
Better internet access / connectivity	65 (10.4)	**<0.0001**
More devices, tools, or technology (e.g., laptop, tablet)	44 (7.0)	**<0.0001**
More structure	146 (23.3)	**<0.0001**
More clear communication from teachers	267 (42.7)	**0.0002**
More clear communication from administrators	83 (13.3)	**<0.0001**
More recorded lessons	134 (21.4)	**<0.0001**
More live lessons	111 (17.7)	**<0.0001**
More group interaction (with other students)	147 (23.5)	**<0.0001**
More academic / college counseling services or resources	59 (9.4)	**<0.0001**
More mental health counseling services or resources	81 (12.9)	**<0.0001**
Other (please specify)	6 (1.0)	**<0.0001**
None	96 (15.3)	**<0.0001**

Table 6a. Additional Resources or Services Stratified by Race/Ethnicity and Free & Reduced Lunch Eligibility (n = 666)								
Variable	**White n (%)**	**Hispanic n (%)**	**Black n (%)**	**Other n (%)**	**Chi Square p-value**	**FRL n (%)**	**Non-FRL n (%)**	**Chi Square p-value**
What additional resources or services could your school and/or teachers provide to help you with online learning? [Select all that apply]								
More lenient grading policy	137 (38.4)	59 (44.4)	18 (23.4)	28 (47.7)	**0.0100**	103 (39.8)	139 (37.9)	0.6318
More extra credit opportunities	158 (44.3)	60 (45.1)	29 (37.7)	27 (45.8)	0.7069	127 (49.0)	147 (40.1)	**0.0257**
More summer learning opportunities	18 (5.0)	7 (5.3)	4 (5.2)	6 (10.2)	0.4580	19 (7.3)	16 (4.4)	0.1104
Better internet access / connectivity	37 (10.4)	15 (11.3)	8 (10.4)	5 (8.5)	0.9512	28 (10.8)	37 (10.1)	0.7684
More devices, tools, or technology (e.g., laptop, tablet)	24 (6.7)	11 (8.3)	5 (6.5)	4 (6.8)	0.9393	20 (7.7)	24 (6.5)	0.5687
More structure	91 (25.5)	24 (18.1)	15 (19.5)	16 (27.1)	0.2488	55 (21.2)	91 (24.8)	0.2996
More clear communication from teachers	172 (48.2)	50 (37.6)	21 (27.3)	24 (40.7)	**0.0039**	107 (41.3)	160 (43.6)	0.5693
More clear communication from administrators	50 (14.0)	17 (12.8)	4 (5.2)	12 (20.3)	0.0680	28 (10.8)	55 (15.0)	0.1292
More recorded lessons	78 (21.9)	29 (21.8)	17 (22.1)	10 (17.0)	0.8563	60 (23.2)	74 (20.2)	0.367
More live lessons	64 (17.9)	24 (18.1)	14 (18.2)	9 (15.3)	0.9642	50 (19.3)	61 (16.6)	0.3866
More group interaction (with other students)	81 (22.7)	35 (26.3)	18 (23.4)	13 (22.0)	0.8522	62 (23.9)	85 (23.2)	0.8212
More academic / college counseling services or resources	29 (8.1)	14 (10.5)	7 (9.1)	9 (15.3)	0.3538	29 (11.2)	30 (8.2)	0.2024
More mental health counseling services or resources	50 (14.0)	15 (11.3)	5 (6.5)	11 (18.6)	0.1557	39 (15.1)	42 (11.4)	0.1846
Other (please specify)	4 (1.1)	2 (1.5)	0 (0.0)	0 (0.0)	0.6081	2 (0.8)	4 (1.1)	0.6878
None	48 (13.5)	18 (13.5)	21 (27.3)	9 (15.3)	**0.0207**	37 (14.3)	59 (16.1)	0.5403

Table 6b. Additional Resources or Services Stratified by Grade Level and Gender (n = 666)								
Variable	**Grade 9 n (%)**	**Grade 10 n (%)**	**Grade 11 n (%)**	**Grade 12 n (%)**	**Chi Square p-value**	**Female n (%)**	**Male n (%)**	**Chi Square p-value**
What additional resources or services could your school and/or teachers provide to help you with online learning? [Select all that apply]								
More lenient grading policy	68 (35.1)	65 (39.9)	62 (39.0)	47 (42.7)	0.5845	157 (39.6)	85 (37.1)	0.5478
More extra credit opportunities	94 (48. 5)	72 (44.2)	63 (39.6)	45 (40.9)	0.3594	196 (49.3)	78 (34.1)	**0.0002**
More summer learning opportunities	13 (6.7)	10 (6.1)	8 (5.0)	4 (3.6)	0.6974	24 (6.1)	11 (4.8)	0.5148
Better internet access / connectivity	14 (7.2)	12 (7.4)	18 (11.3)	21 (19.1)	**0.0051**	47 (11.8)	18 (7.9)	0.116
More devices, tools, or technology (e.g., laptop, tablet)	7 (3.6)	12 (7.4)	13 (8.2)	12 (10.9)	0.0955	34 (8.6)	10 (4.4)	**0.0478**
More structure	32 (16.5)	37 (22.7)	47 (29.6)	30 (27.3)	**0.0232**	83 (20.9)	63 (27.5)	0.0598
More clear communication from teachers	85 (43.8)	74 (45.4)	53 (33.3)	55 (50.0)	**0.0338**	174 (43.8)	93 (40.6)	0.4331
More clear communication from administrators	27 (13.9)	20 (12.2)	14 (8.8)	22 (20.0)	0.0629	61 (15.4)	22 (9.6)	**0.0407**
More recorded lessons	33 (17.0)	33 (20.2)	39 (24.5)	29 (26.4)	0.1803	95 (23.9)	39 (17.0)	**0.0427**
More live lessons	35 (18.0)	27 (16.6)	27 (17.0)	22 (20.00)	0.8931	69 (17.4)	42 (18.3)	0.7619
More group interaction (with other students)	54 (27.8)	25 (15.3)	35 (22.0)	33 (30.0)	**0.0125**	90 (22.7)	57 (24.9)	0.5278
More academic / college counseling services or resources	2 (1.0)	7 (4.3)	21 (13.2)	29 (26.4)	**<0.0001**	48 (12.1)	11 (4.8)	**0.0026**
More mental health counseling services or resources	20 (10.3)	23 (14.1)	15 (9.4)	23 (20.9)	**0.0253**	65 (16.4)	16 (7.0)	**0.0008**
Other (please specify)	3 (1.6)	0 (0.0)	3 (1.9)	0 (0.0)	0.1877	2 (0.6)	4 (1.8)	0.1242
None	33 (17.0)	25 (15.3)	24 (15.1)	14 (12.7)	0.8006	54 (13.6)	42 (18.3)	0.113

Table 6c. Additional Resources or Services Stratified by Attendance, Honors Eligibility, and Learning Modality (n = 666)									
Variable	**Standard Attendance n (%)**	**Low Attendance n (%)**	**Chi Square p-value**	**Honors n (%)**	**Non-Honors p-value**	**Chi-square p-value**	**Distance n (%)**	**In-Person n (%)**	**Chi Square p-value**
What additional resources or services could your school and/or teachers provide to help you with online learning? [Select all that apply]									
More lenient grading policy	205 (38.1)	37 (42.1)	0.4815	147 (40.3)	95 (36.4)	0.3262	52 (36.4)	143 (38.3)	0.6789
More extra credit opportunities	232 (43.1)	42 (47.7)	0.4196	157 (43.0)	117 (44.8)	0.652	68 (47.6)	161 (43.2)	0.3691
More summer learning opportunities	24 (4.5)	11 (12.5)	**0.0023**	17 (4.7)	18 (6.9)	0.2293	10 (7.0)	21 (5.6)	0.5598
Better internet access / connectivity	52 (9.7)	13 (14.8)	0.1454	44 (12.1)	21 (8.1)	0.105	14 (9.8)	30 (8.0)	0.5247
More devices, tools, or technology (e.g., laptop, tablet)	37 (6.9)	7 (8.0)	0.714	24 (6.6)	20 (7.7)	0.5997	9 (6.3)	23 (6.2)	0.9571
More structure	122 (22.7)	24 (27.3)	0.3446	87 (23.8)	59 (22.6)	0.7197	28 (19.6)	88 (23.6)	0.3285
More clear communication from teachers	227 (42.2)	40 (45.5)	0.5663	157 (43.0)	110 (42.2)	0.8286	58 (40.6)	154 (41.3)	0.8805
More clear communication from administrators	73 (13.6)	10 (11.4)	0.5717	46 (12.6)	37 (14.2)	0.5671	19 (13.3)	42 (11.3)	0.5233
More recorded lessons	112 (20.8)	22 (25.0)	0.3752	84 (23.0)	50 (19.2)	0.2461	23 (16.1)	82 (22.0)	0.1362
More live lessons	91 (16.9)	20 (22.7)	0.1857	57 (15.6)	54 (20.7)	0.1013	27 (18.9)	62 (16.6)	0.5432
More group interaction (with other students)	131 (24.4)	16 (18.2)	0.2057	84 (23.0)	63 (24.1)	0.7435	27 (18.9)	87 (23.3)	0.2762
More academic / college counseling services or resources	52 (9.7)	7 (8.0)	0.6106	42 (11.5)	17 (6.5)	**0.035**	7 (4.9)	23 (6.2)	0.5808
More mental health counseling services or resources	68 (12.6)	13 (14.8)	0.5804	45 (12.3)	36 (13.8)	0.5904	18 (12.6)	40 (10.7)	0.5486
Other (please specify)	4 (0.7)	2 (2.3)	0.1723	5 (1.4)	1 (0.4)	0.2115	2 (1.4)	4 (1.1)	0.757
None	84 (15.6)	12 (13.6)	0.6333	53 (14.5)	43 (16.5)	0.5034	20 (14.0)	62 (16.6)	0.4635

Table 7. Association between Honors Status and Various Education Concerns						
	Academic Worry & Honors Status		Academic Confidence & Honors Status		Adjustment to Online Learning and Honors Status	
	Crude	Adjusted for all variables*	Crude	Adjusted for all variables	Crude	Adjusted for all variables
Odds Ratio [95% CI]	**0.6590 (0.4914, 0.8837)**	**0.6344 (0.4716, 0.8535)**	0.9092 (0.6764, 1.2220)	0.9100 (0.6754, 1.2260)	**0.6647 (0.4911, 0.8998)**	**0.6558 (0.4832, 0.8899)**
p-value	**0.0053**	**0.0026**	0.5280	0.5352	**0.0082**	**0.0068**

*Variables: race/ethnicity, FRL status, grade level, gender

Table 8. Association between Pre-Pandemic Attendance and Various Education Concerns						
	Academic Worry & Low Attendance		Academic Confidence & Low Attendance		Adjustment to Online Learning and Low Attendance	
	Crude	Adjusted for all variables*	Crude	Adjusted for all variables	Crude	Adjusted for all variables
Odds Ratio [95% CI]	**1.5931 (1.0553, 2.4049)**	**1.6075 (1.0642, 2.4283)**	1.4238 (0.9382, 2.1609)	1.4232 (0.9376, 2.1601)	**1.6496 (1.0736, 2.5345)**	**1.6525 (1.0754, 2.5393)**
p-value	**0.0267**	**0.0241**	0.0969	0.0974	**0.0224**	**0.0219**

*Variables: race/ethnicity, FRL status, grade level, gender

Table 9. Association between Education Concerns and Fall 2020 Learning Modality				
	Academic Worry & Distance Learning		Academic Confidence & Distance Learning	
	Crude	Adjusted for all variables*	Crude	Adjusted for all variables
Odds Ratio [95% CI]	**1.643 (0.855, 3.158)**	**1.642 (0.854, 3.156)**	**0.986 (0.539, 1.804)**	**0.9900 (0.5410, 1.8110)**

*Variables: race/ethnicity, FRL status, grade level, gender