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Course Choice Among Online K-12 Students

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Abstract

Many K-12 brick and mortar public schools now grant students the option of taking some of their courses online. Yet, a scant academic literature probes where online course choice exists and why it is utilized. We partner with a market research firm to solicit 450 responses from a nationally representative group of American parents of public school-educated children to begin to understand the predictors of districts adopting course choice, disparities in access, and why families utilize course choice. Overall, there are no clear intrastate predictors of which districts provide parents the option to avail online course choice. In schools where the option of online course choice is not provided, however, there is notably stronger demand in traditional public and magnet schools compared to charters. Finally, among several options provided, respondents emphasized the importance of scheduling flexibility or simply believing that their child would learn more in their decision to utilize online course choice.

Introduction

Many philanthropists, education reformers, policymakers, and activists believed that the internet would revolutionize American public education (Moe & Chubb, 2009; Cain, 2021). In many regards this revolution has not come to pass. COVID-19 related school closures notwithstanding, students still overwhelmingly receive direct instruction from a teacher while meeting face-to-face in a traditional school building, while fewer than one percent of American students are enrolled in fully virtual schools (Keaton, 2021). Indeed, American education has not radically changed in the past century despite assurances of revolution from reform skeptics and opponents.

But while sweeping changes in American public education may not have materialized, the digital age has precipitated some noteworthy changes in what, where, and how students learn. A 2013 Pew research poll for example observed that 92% of teachers claim that the internet has had a “major impact” on their ability to access content, resources, and materials for teaching. Nearly 7 in 10 report it has also had a major impact on sharing ideas with other teachers and interacting with parents (Purcell, Buchanan & Friedrich, 2013). And while in-person learning overwhelmingly remains the preferred method of content delivery, many districts have made some online courses available both to supplement (i.e. take courses not available at the school) or supplant (i.e. the same course is available at the school) the child’s in-person education.

The COVID-19 pandemic and associated school adoption of emergency remote online learning could perhaps accelerate adoption of blended learning (i.e. in-person courses have online components) and online course choice (i.e. fully online courses for students in brick and mortar schools). Though brick and mortar schools struggled in their delivery of online learning (Kingsbury, 2021), the experience perhaps normalized it as an instructional delivery method and highlighted its potential utility. A recent survey of college students found that 73% expressed interest in enrolling in some fully online courses (McKenzie, 2021).

On a macro level, access to online courses is largely determined by state-level policy. Lawmakers in Florida for example contemplated a law that would have required students to take at least one course online to receive a diploma, though ultimately made accommodations due to pushback (Postal, 2016). In New York State, meanwhile, Governor Cuomo’s promise to “reimagine education” in the wake of COVID-19 spurred speculation about greater infusion of technology into classrooms, but no such plan came to fruition. Access to online course offerings in New York K-12 schools remains somewhat elusive and is generally reserved for credit recovery (Clements, Pazzaglia & Zweig, 2013). Who provides online courses and how it is paid for also varies depending on local context. Some districts delegate teachers to teach one or several courses online, whereas others pay fees to outside vendors or established virtual schools.

The evolution and adoption of instructional technology is also not as linear as the conventional wisdom or prognosticators of revolution might have predicted. In 2011, New York City Mayor Michael Bloomberg and School Chancellor Joel Klein kicked off an innovation initiative which was supposed to foster, among other things, greater adoption of instructional technology and the personalized learning that it enables. By 2017 however the program had its budget cut by more than 90% and was largely an afterthought to the progressive reforms heralded by Mayor de Blasio (Abamu, 2017).

Data

We devised a survey that asked adults respondents (18+) about a variety of school-related topics, including access to and utilization of online course choice. The survey was administered by Roscow Market Research, a market research firm headquartered in Bethesda, MD. The nationally representative survey required that respondents were the guardians of school-aged children (K-12), and it consisted of 1,200 participants.

The online course choice questions winnowed responses down to guardians with children in grades 6-12¹ and those enrolled in public schools, including magnet and charter schools (i.e. it excluded students in private schools or homeschooled children). The sample excluded the handful of respondents who has children enrolled in full-time virtual schools. These restrictions ultimately resulted in the participation of 450 parents responding to questions about online course choice. Parents with multiple school-aged children were advised to answer the survey on behalf of their oldest child in primary or secondary school.

Methods and Results

Hypotheses

Online course choice perhaps features the greatest utility in settings with a stronger demand for credit recovery, and in rural settings that sometimes lack the scale to offer the diverse range of course options featured elsewhere. Therefore, we hypothesize that residing in a zip code designated as rural locale is positively correlated with access to and demand for online course choice, and that zip code-level median household income is negatively associated with access and demand. Household income strongly correlates with student achievement (Perry, 2019), college-going cultural mores (Destin, 2013), and school revenue and spending (Baker, Sciarra & Farrie, 2014). To that effect, we assert that it is a strong proxy for demand for credit recovery (i.e. higher income corresponds to lower demand).

¹ Supplemental online course offerings are typically reserved for older grades because primary school students typically have a prescribed course schedule that does not invite customization. Moreover, young students often require supervision or even direct assistance from an adult to participate in online courses.

Who can access online course choice?

Overall, 152 of 450 respondents (38.2%) responded affirmatively to the question: “Does your child have the option of taking courses fully online for course credit?” Just over half of respondents (51.4%) report that their child does not have access to online course offerings, while 16.9% were not sure.

To better understand disparities in access to online course choice, we construct a linear probability model that expresses access as a function of several zip code-level geographic and demographic characteristics, including median household income, racial composition, and whether the zip code is deemed rural by the Federal Office of Rural Health Policy. Data for the first two categories was purchased from databyzipcode.com, a data package that coalesces data from the US Census American Community Survey. The rural indicator was coded manually using the search function in the Rural Health Information Hub (<https://www.ruralhealthinfo.org/>).

All models use a state fixed effect so that observed differences are not statistical artifacts of state-level policy. In models that only use one covariate plus the state fixed effect, we observe that individuals in a zip code with a higher proportion of white residents are less likely to report access to online course offerings, and that those with a higher proportion of Black residents are more likely to report access.

To better understand potential causal pathways, we combine all zip-code level covariates into a single model, formally:

$$\text{Access}_i = \beta_1 \text{rural}_i + \beta_2 \text{hhincome}_i + \beta_3 \text{X}_i + \beta_4 \text{u}_i + \varepsilon_i$$

X denotes a vector of race variables while u denotes a state fixed effect. Respondents who reported being unsure about whether their child had access to online course offerings were coded as missing for the dependent variable.

Overall, within the fully specified model, only household income remains predictive of access to online course offerings, as seen in Table One. Specifically, a one thousand dollar increase in median household income is associated with a .2 percentage point decrease in the likelihood of access to online course choice, all else equal.

Table One: Predictors of Access to Online Course Offerings

	I	II	III	IV	V	VI	VII
Rural	.005 (.056)	-	-	-	-	-	-.021 (.065)
Median hh income	-	-.003*** (.001)	-	-	-	-	-.002** (.001)
Black	-	-	.002 (.001)	-	-	-	-.008 (.008)
Asian	-	-	-	-.001 (.002)	-	-	-.009 (.009)
Hispanic	-	-	-	-	.003* (.001)	-	-.008 (.008)
White	-	-	-	-	-	-.002** (.001)	-.009 (.008)
State FE	Y	Y	Y	Y	Y	Y	Y
n	446	442	442	442	442	442	441

Among those who can't access online course choice, who wants it?

Parents of students in grades 6-12 who reported not having access to online course content were asked, "Do you wish your child had the option of taking some courses online for course credit?" Among the 278 respondents, 145 responded "yes" to the question (52.2%) while 133 (47.8%) responded "no."

To better understand the unfulfilled demand of access to online courses, we employ the same linear probability models used to probe who can access course choice, the difference being that the dependent variable becomes their response to whether parents desire access to online courses.

In considering the impact of zip-code level geographic data, the models that only feature one variable in addition to a state fixed effect reveals that a higher share of Hispanic students is associated with a statistically significant increase in demand for virtual options whereas the share of white students is negatively associated with demand. In the fully specified model, however, none of the predictors are statistically significant.

Table Two: Regional Predictors of Desiring Online Course Offerings

	I	II	III	IV	V	VI	VII
Rural	.018 (.083)	-	-	-	-	-	.053 (.095)
Median hh income	-	-.001 (.001)	-	-	-	-	-.000 (.002)
Black	-	-	.002 (.002)	-	-	-	-.025 (.022)
Asian	-	-	-	.001 (.004)	-	-	-.023 (.023)
Hispanic	-	-	-	-	.006*** (.002)	-	-.019 (.022)
White	-	-	-	-	-	-.003*** (.001)	-.025 (.021)
State FE	Y	Y	Y	Y	Y	Y	Y
	275	273	273	273	273	273	272

In addition to considering regional characteristics and how they predict desire to access online course choice, we also consider the individual characteristics of the respondents. Specifically, we express the indicator variable for desiring access as a function of ethnicity and self-reported political affiliation of the respondent, and whether the child for whom their answering has an individualized education plan (IEP) and whether they qualify for free or reduced-price lunch (FRL). We also consider whether the student is enrolled in a magnet, charter, or traditional public school. Overall, the results highlight differences by ethnicity that are practically and statistically significant if the model only controls for one state and one ethnicity. Specifically, African American respondents are 25.8 percentage points more likely to express a desire for online course choice compared to all others whereas white respondents are 21.1 percentage points less likely to express interest. In raw terms, 18 of 26 African American respondents responded that they wish they had access to virtual course offerings compared to 104 of 213 white respondents.

Why do families utilize online course choice?

A final set of questions probes why families opt to utilize online course choice, which 52 of the 172 respondents that have access report doing. Likert-scale questions ask them to consider the importance of several potential explanations, as seen in Figures 1-5. Desiring scheduling flexibility and feeling as though their child would learn more stand out as the most important factors. Indeed, more than half of respondents cited those two reasons as either important or very important. Preference for the teacher in the online course to the one the student would have otherwise been assigned is ascribed the least importance, and yet just over one quarter of respondents cite it as an important or very important factor. Meanwhile, more than one third of respondents characterize social emotional factors or the course being unavailable as either important or very important. These results suggest that the decision to utilize online course choice is multifaceted and not driven by one solitary factor.

Figure 1: Reasons for Utilizing Online Course Choice (Scheduling Flexibility)

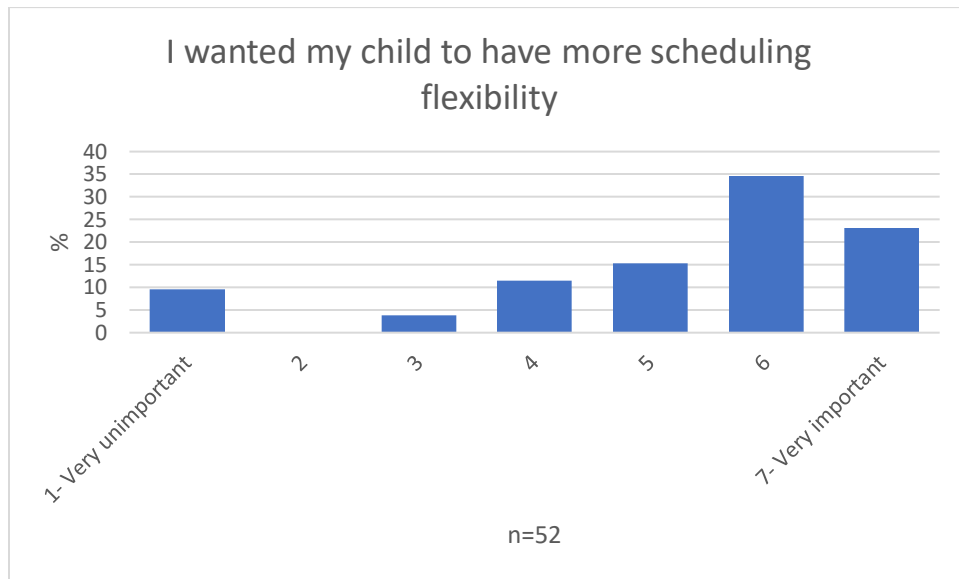


Figure 2: Reasons for Utilizing Online Course Choice (Learn More)

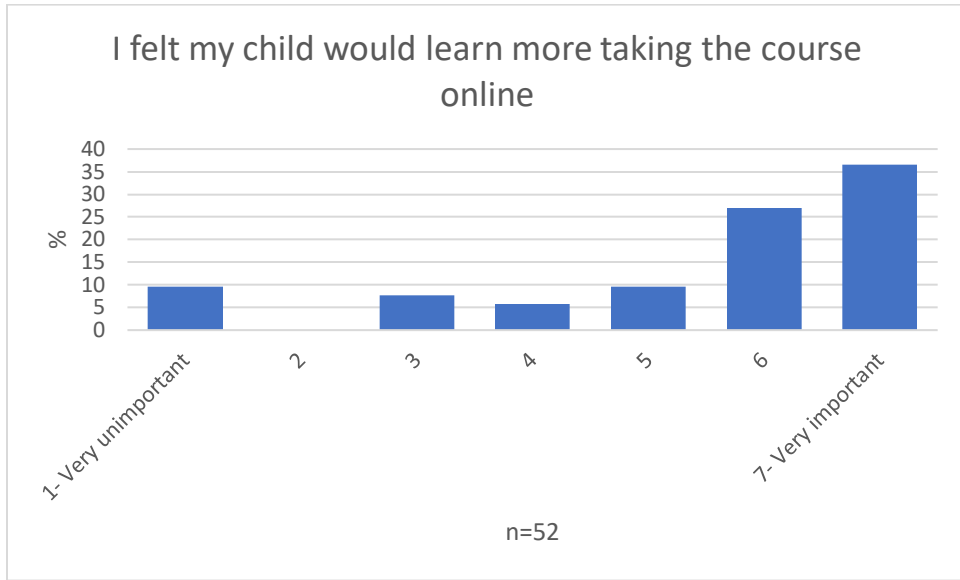


Figure 3: Reasons for Utilizing Online Course Choice (Prefer Teacher)

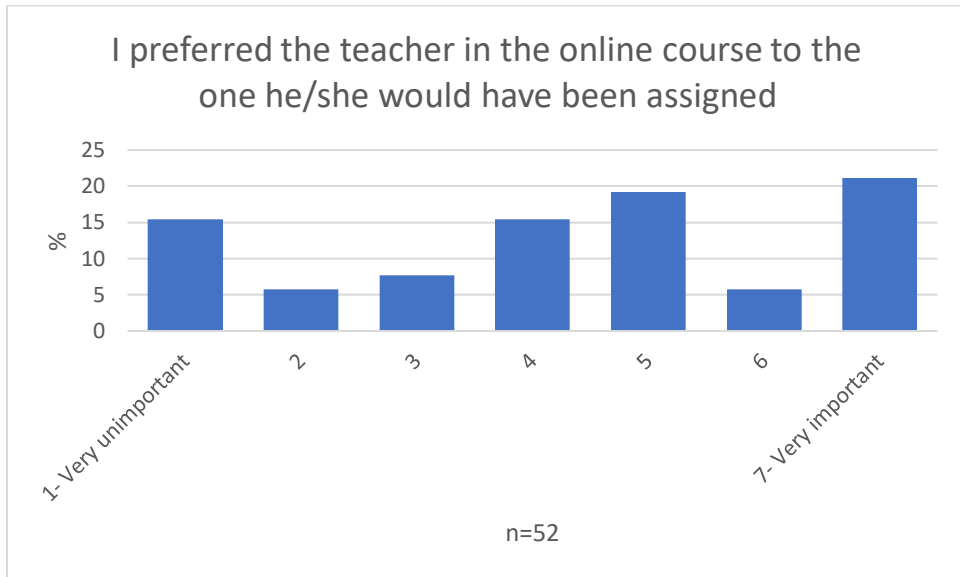


Figure 4: Reasons for Utilizing Online Course Choice (Course Unavailable)

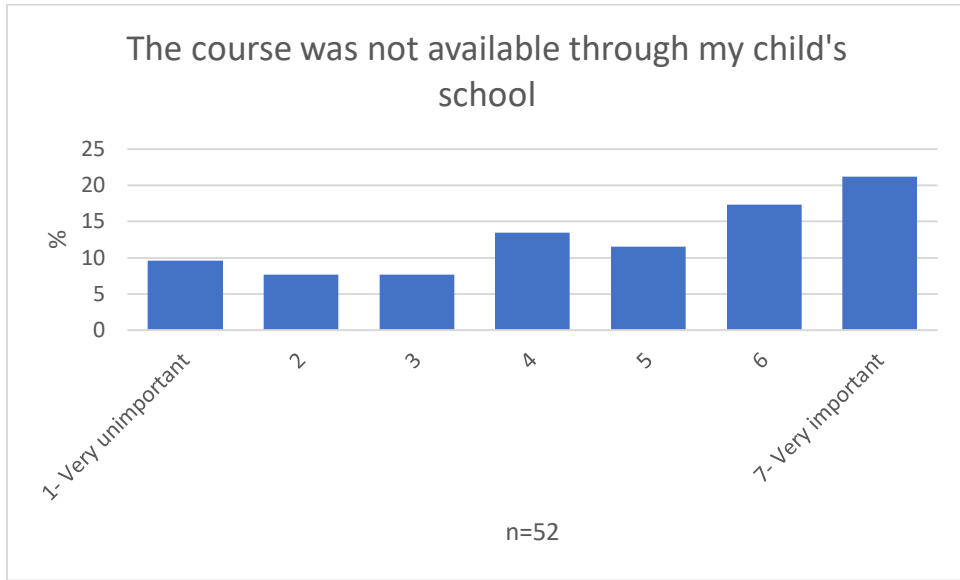
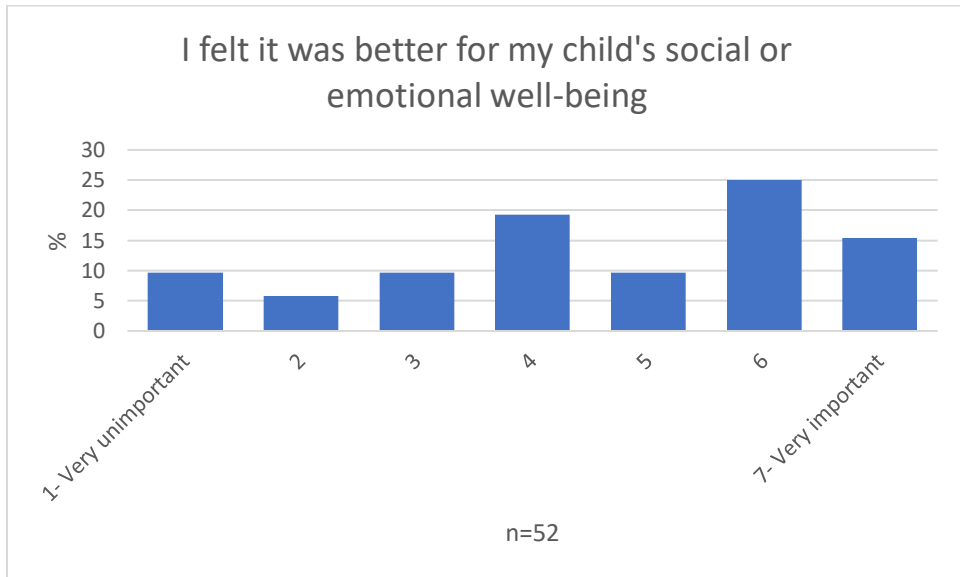


Figure 5: Reasons for Utilizing Online Course Choice (Social Emotional)



Discussion and Conclusion

Online course choice is an oft-utilized but rarely studied development in the American education reform landscape. Here, we take a first pass at understanding where it is offered, to whom, and why it is utilized.

As expected, zip-code level household income is negatively and significantly correlated with access to online course choice, which we hypothesize is likely an indicator that districts are more likely to offer it when there is greater demand for credit recovery. Still, our data does not allow us to rule out other possible explanations for the observed correlation, and indeed other possibilities like school safety (i.e. greater uptake where school safety is worse) should not be ruled out. On the other hand, our hypothesis that access is more prevalent in rural communities is not supported by our estimates. Perhaps our observation reflects stronger deference toward the traditional education practices in rural settings or, more broadly, comparatively tepid attitudes toward the role of the internet in everyday life (Vogels, 2021). It may also be the case that lack of access to broadband internet dampens enthusiasm for online education. According to the Federal Communications Commission (2020), 22.3 percent of Americans in rural areas lack broadband coverage that reaches 25/3 Mbps, compared to only 1.5 percent of Americans in urban settings.

In terms of assessing which constituencies lack access to online course choice but desire access, no clear patterns emerge. Still, more than half of respondents who lack access to online course choice express a desire for access. Our findings suggest that, at least in the interest of parental satisfaction, districts that don't currently offer access would be wise to adopt it. Enrollment in traditional public schools fell substantially during the first two years of the COVID-19 pandemic in part because parents felt that traditional public schools were less nimble and adept in their delivery of online learning (Kingsbury, 2021). Making online courses available then could provide a hedge against the frustrations associated with the bureaucratic and comparatively unmalleable nature of the traditional public school system. Moreover, online course choice allows traditional public schools to embrace the merit of parental choice while steering clear over more politically contentious battles over school choice (Hess, 2022).

Finally, it's notable that parents who utilize online course choice cite a variety of reasons for their uptake. The multifaceted nature of their decision highlights the potential peril in conceiving of online course choice as a solution to one particular problem (e.g. lack of access to advanced placement

courses) and reveals that it should be thought of and implemented as a tool that can address multiple issues for diverse stakeholders.

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