Why They Come and Go:
Comparing Special Education and General Education Students in Cyber Schools

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Considerable published research explores drivers of parent choice for in-person schools, but few studies have addressed reasons for attending full-time cyber schools, and how student characteristics affect those reasons; hence, this study's unique contribution. Here we use a large national dataset (n= 95,259) to test whether students with disabilities differ in stated reasons for attending a multistate cyber charter school network. Using linear probability models, we find that parents of children with disabilities are relatively more likely than others to cite academic, bullying, and health concerns as driving their choice of schools. Interestingly, parents of children with disabilities offered more reasons for leaving their prior schools than reasons that attracted them to the online school. Also, students with disabilities whose parents cited academic reasons for enrollment in the cyber school were less likely to persist in the school the next year. Implications are discussed, including the relevance of accessibility challenges for online students with disabilities attempting to access online tools and instructional materials. Future research suggestions focus on the importance of collaboration for all stakeholders of online students with disabilities.

INTRODUCTION

Leading up to the onset of the COVID-19 pandemic, full-time, K-12 online schools, known historically as cyber charter schools, had expanded rapidly in the 2010s, making research on these options important (Molnar et al., 2019). Between 2017-18 and 2019-20 alone, enrollments in these types of schools increased by nearly 30,000 students (Molnar et al., 2019). The term "cyber charter school" was based on early research by Clark (2001) which found seven categories of online learning programs and has been used in the "Virtual Schools in the U.S." reports that are regularly published by the National Educational Policy Center (e.g., Molnar et al., 2019).

While considerable published research explores the academic performance of cyber charter schools, little research explores *why* parents choose these schools, and how those choices may vary by student subgroups. Here, we test whether the parents of students with designated special education (SPED) status (including Section 504 designations) report distinct reasons for choosing campuses of a national cyber charter school network. This work thus adds to the literature addressing stated reasons for parental choice, which often cite *pull* factors that make a school more desirable to attend or *push* factors that make a school less desirable to attend (Altenhofen et al., 2016; Ellison & Aloe, 2019; Singer, 2020). Generally, we find that parents of students with disabilities are relatively more likely to cite academic, social, and health concerns in their reasons for enrolling in a cyber charter school, and to cite more reasons overall. Surprisingly, the parents of students with disabilities who cite academic reasons for enrolling are less likely to re-enroll their students the following year. We conclude with recommendations for future research.

LITERATURE REVIEW

Parental involvement with students and their teachers in in-person schools has been positively correlated with academic course outcomes (Anderson et al., 1985; Cotton & Reed-Wikelund, 1989; Edwards, 2004; Henderson, 1981, 1987). Research by Liu et al. (2010) showed that in cyber schools, parental involvement in their students' learning over the course of an entire year had a very strong positive correlation with academic achievement. Research by Borup et al. (2013), however, found that the number of parental interactions were negatively correlated with short-term semester academic outcomes. This result was most likely due to parents' tendency to increase their involvement with their students' learning and teachers after a poor semester grade (Borup et al., 2013).

Given the impacts of parental involvement in both in-person and cyber schools, it is important to consider why parents choose these schools. Generally, national parent surveys (e.g., Barrows et al., 2019) within certain school markets, and studies of parental preferences have all indicated that across public, charter, and private schooling markets, most parents prioritize academic quality in their decisions when choosing in-person schooling options (Prieto et al., 2019; for a broad review of the literature see Erickson, 2017). In addition, some authors of quantitative and qualitative studies see a hierarchy of needs in school choice (e.g. Shultz, 2019; Gutman, 2017). Where schools are perceived as unsafe, parents prioritize safety; where schools are perceived as safe, academic factors have greater influence on parent choices (Stewart & Wolf, 2014).

Little research explores parent decision-making regarding online schooling options. Comparing special education (SPED) and general education (non-SPED) students (n=269) and parents (n=232) at a single cyber charter secondary school, Beck et al. (2014) found that students with disabilities receiving special education services were far more likely than peers to mention push factors like bullying, teachers, and curricula as driving their decision to attend a cyber school; special education parents were more likely to mention bullying and behavioral issues. Chandler (2015) conducted an online survey of 144 parents of grade K-6 students, finding that parents primarily cite pull factors including individualized learning, basic skills, and instilling values in accord with the family. Push factors like safety had less impact. This contrasts with the Beck et al. (2014) push factors of bullying, teachers, and curricula (see Table 1 for a full list of push and pull factors from the literature).

To some degree the parents of students with disabilities surveyed by Chandler (2015) are an exception, being somewhat more likely than peers to mention problems with their prior schools' individualized learning plans as a push factor. Schultz (2019) studied 1,509 students enrolled in a K-12 cyber charter school, finding that, for the most part, pull factors such as the need for a flexible, individualized schedule and instilling family values were most common in parent decisions to enroll their child, but that push factors such as bullying, issues with special education programs, teacher and curriculum quality, and general dissatisfaction were also frequently cited.. They found few notable differences across demographic groups, though Black parents were somewhat more likely to cite bullying.

Table 1
Push and Pull Factors Driving Students with Disabilities to Attend Cyber Schools

Push factors	Pull factors
Bullying	Individualized learning
Safety	Flexible schedule
Teacher quality	Academic quality
Curriculum quality	Instilling family values
SPED program issues	SPED program
Dissatisfaction with school	Positive socialization

In short, reasons why parents choose cyber schools may vary across a range of factors, possibly reflecting particularized local markets. Though prior work has not explicitly explored this, Beck et al. (2014) offered indications that academic concerns may be more stable than social or bullying related concerns, which may reflect more dynamic interrelationships within a school. Sometimes, the transfer or discipline of a single student or small group of students (or teachers) may defuse difficult and even unsafe social situations (Wiseman, 2002). Social media may reinforce these tendencies (Twenge, 2017). Qualitative work with five students with disabilities and their parents enrolled in an online charter school showed that students and parents think similarly about choosing cyber schools, finding preferences for academic quality, safety, flexibility, special needs, and positive socialization in online environments (Tonks et al., 2020).

Regarding parental satisfaction, survey research indicates that schools of choice such as private schools and public charter schools have greater parent satisfaction than traditional public schools on a range of indicators (Barrows et al., 2019). Some of the differences may reflect particular characteristics of schools of choice, though in part greater levels of parent satisfaction may occur simply because parents appreciate the act and process of choosing. Indeed, some empirical evidence from parents with low household incomes who won vouchers to attend private schools (Stewart & Wolf, 2014) and from charter school parents (Buckley & Schneider, 2009) suggests that some of this greater reported satisfaction fades over time. Beck et al. (2014) and Beck et al. (2013) explored cyber school satisfaction, finding somewhat higher satisfaction for students with disabilities and their parents than for general education peers.

Generally, male students have less academic success in K-12 schools than females, perhaps indicating greater need for such interventions for males (DiPrete & Buchmann, 2013). This finding is similar to the findings of research regarding sex differences (Geary, 2020). Push factors that make

it relatively undesirable to attend in-person schools include health reasons, bullying, and scheduling needs. These reasons may be less static than academic factors (Beck & LaFrance, 2017). For example, physical intimidation and emotional bullying may be transient among school age youth, allowing former victims to recover (Turner et al., 2020). Virtual schools may also act as a shelter for traditional public school (TPS) students who have experienced bullying (Beck et al., 2013).

We should note findings that cyber charter schools have underperformed relative to charter and traditional, in-person schools in regards to academic value added (for summaries see Finn et al., 2016; Saultz & Fusarelli, 2017). In part, this finding may reflect high student turnover, which itself often reflects student characteristics (Ahn & McEachin, 2017). Accordingly, it is important to consider whether students attending cyber schools are different, with diverse characteristics that may affect measured schooling success. It is also important to study both reasons for *choosing* cyber schools and for *leaving* those schools. Few prior scholarly works address the former while we are unaware of any addressing the latter. Further, prior research has explored parental decisions to enroll their child in a single cyber school with limited enrollment (Beck et al., 2014), not a cyber school network serving large numbers of students and parents; hence this work's unique contribution.

Research indicates that students with disabilities and their parents face difficulties in in-person schooling (Valle, 2009), likely making cyber schooling more appealing to them. In cyber schools, students can replay lessons, and parents can monitor academic progress daily. Much research on students with disabilities in online learning environments has emerged in the last several years, beginning with the 2015 *Equity Matters: Digital & Online Learning for Students with Disabilities report* (Basham et al., 2015). For example, Burdette and Greer (2014) reported that 88% of parents of students with disabilities were the primary decision maker in the selection of where their child attended school, and that they were mostly satisfied with their children's academic outcomes. Challenges reported by these parents included a lack of participation in state assessments by their students with disabilities and spending multiple hours per day helping their child with their schoolwork. These findings support the work of Currie-Rubin and Smith (2014). Specific barriers to online learning for students with disabilities that emerged from this research included limited physical access to technology and online accessibility awareness (Hashey & Stahl, 2014), increased teacher preparation time to assemble supplemental resources and develop specific accommodations (Greer, Rowland & Smith, 2014), and lack of teacher self-efficacy to effectively teach students with disabilities in an online environment (Greer et al., 2014; Smith et al 2016).

Research from the Center on Online Learning and Students with Disabilities has also inspired additional research. Accessibility of online course materials appears to be a significant challenge for students with disabilities. Phenomenological research with students who have a learning disability showed that much of the instructional materials and the online environment lacked in accessibility features (Avarado-Alcantar & Keeley, 2020). Also, Rice and Ortiz (2020) conducted survey research showing that while two in three teachers agreed or strongly agreed that the text and images in online courses that they taught was accessible, 32% saw them as only "somewhat" accessible. Only 53% agreed or strongly agreed that the courses they taught provided alternative means of access to multimedia content in formats that met the needs of diverse learners.

Other research focused on teachers' and other stakeholders' perspectives on online students with disabilities. For example, Crouse et al. (2018) completed six qualitative interviews with online teachers, finding that teacher practices coalesced around their knowledge of curriculum, instructional groupings, parent communication, and technological supports. They also found that good teaching practices for those teaching students with disabilities online were mainly drawn from initial preparation experiences, prior in-person teaching experience, professional development, experience working with students, and teacher collegial networks. Rice and Carter (2015) found that teachers, special education case managers, school level special education administrators, and regional directors all used different methods to interact with students with disabilities and their parents and were ill equipped to adapt to an online learning environment. Finally, attention has been drawn to the need for teacher education that focuses on learning online. For example, Rice and Deschaine (2020) recommended collaboration between agencies, universities, and other entities that make and endorse online teaching practices and policies to develop specific professional development for teachers who teach students with disabilities.

HYPOTHESES

In this research, we tested whether students with disabilities (including 504 designations) differ in stated reasons for attending and leaving campuses of a national cyber charter school network, which we will refer to as National Cyber. The following are our hypotheses:

H1: Parents of students with disabilities will be relatively more likely than others to cite academic factors in their reasons for enrolling in National Cyber.

H2: Parents of students with disabilities will be relatively less likely than others to cite safety factors like bullying in their reasons for enrolling in National Cyber.

H3: Parents of students with disabilities will be relatively less likely than others to cite health factors in their reasons for enrolling in National Cyber.

H4: Students with disabilities whose parents cite academic factors in choosing a cyber schooling will be relatively more likely to persist than students without disabilities whose parents cite academic factors in choosing a cyber school.

The rest of this paper offers tentative tests of these hypotheses.

METHODS AND DATA

From National Cyber, we obtained student-level demographic data and data from parent intake surveys in two academic years: 2018-19 and 2019-20. We conducted analyses through two steps: construction of groups based on parent responses, and the use of pairwise t-tests.

Our hypothesis tests rely on parent survey responses collected at the time of enrollment on reasons why they enrolled their child in a cyber school. In 2018-19 and 2019-20, parent survey responses were broken out into 10 categories, then grouped under three factors: academic, health, and safety. National Cyber collected these data before the COVID-19 pandemic.

Table 2
Enrollment Reason Categories and Implications in 2018-19 and 2019-20

Category	Implication
Academic	
Students were struggling academically	Students were enrolled in cyber schools because they were struggling academically
More involvement	Students were enrolled in cyber schools because parents wanted more involvement in students' learning
Insufficient attention	Students were enrolled in cyber schools because they did not receive sufficient attention from teachers
Flexible schedule	Students were enrolled in cyber schools because of schedule flexibility
Academically ahead	Students were enrolled in cyber schools because they were academically ahead
Health	
Metal health concerns	Students were enrolled in cyber schools because they had mental health concerns
Physical health concerns	Students were enrolled in cyber schools because they had physical health concerns
Safety	
Safety concerns	Students were enrolled in cyber schools because parents had safety concerns
Bullying	Students were enrolled in cyber schools because they were bullied in their prior schools

We examined H1, H2, and H3 separately for two years of data, with demographic variables and indicators of reasons. For H4, we created the sample through three steps. First, we combined the 2018-19 and 2019-2020 data. Second, we removed all 12th graders in 2018-19. Third, we excluded all new students from the dataset. We then created an indicator called return. Return takes the value of 1 if the student was present in both years (persisting), and 0 if the student was only in the 2018-19 dataset, leaving 95,259 students for analysis.

Analytic strategy

We employed linear probability models to test our hypotheses. The overarching model to test H1, H2, and H3 is as follows:

$$Y_i = b_0 + b_1 SPED_i + b_2 X_i' + \Delta_i + \eta_i + \varepsilon_i \quad (1)$$

where Y is reason for enrollment in H1, H2, H3 of student i. We included a matrix of covariates for student characteristics X' including gender, FRL status, and race. We also included grade fixed effects Δ as well as school fixed effects η to control for variations in student and school inputs. Because students at the same school experience similar environments regarding teachers, school climate, and changes in school policies, we clustered errors at the school level. Ideally, we would have errors clustered at classroom level, but we lacked classroom level data.

Similarly, equation 2 is the model to test H4 where Y is the likelihood of students returned in the next year in H5 of student *i*. *SPED*accain* represents the interaction between SPED students and citing academic enrollment reasons.

$$Y_i = b_0 + b_1 SPED_i + b_2 SPED*academic + b_3 academic + b_4 X_i' + \Delta_i + \eta_i + \varepsilon_i \quad (1)$$

RESULTS

Table 3 reports summary statistics for student characteristics and reasons for enrollment. Looking across the two annual samples and the two-year H4 sample, approximately 45% of students were Free and Reduced Meal (FARM) eligible and about 10% had special education or 504 designations each year. Roughly 60% were White, 12% Black, 17% Hispanic, and 54% Female. Reasons for enrollment varied more widely than student characteristics across the samples. Most parents cited academic factors as important to their enrollment decisions, with one fifth to one third noting health and safety related priorities.

Table 3
Summary Statistics of Student Characteristics and Enrollment Reasons
2018-19, 2019-20, and sample for H4

Variables	2018-19	2019-20	H4 sample
Student characteristics			
% FARM eligible	45.9	46.3	45.7
% SPED	12.2	8.8	10.5
% White	60.3	59.3	59.9
% Black	11.4	11.9	11.7
% Hispanics	17.0	18.2	17.3
% Other	11.2	10.6	11.1
% Female	54.0	54.5	53.6
Reasons for enrollment			
% Academic	62.2	76.4	70.4
% Safety	26.4	32.6	27.5
% Health issues	20.4	22.1	20.5
Total N	103,815	110,939	95,259

Tables 4 and 5 report estimates from running linear probability models each school year to predict the likelihood of citing academic, safety, and health factors respectively as reasons given for enrollment in a cyber school. After controlling for other student characteristics, variations across students and schools, and the fact that students are clustered at the school level, we found that parents of students with disabilities are indeed more likely to cite academic, safety, and health as reasons to enroll their children in cyber schools, relative to parents of students without disabilities. This pattern is consistent across two years of examination.

For example, in 2018-19, parents of students with disabilities were six percentage points more likely to cite academic enrollment reasons, 10 percentage points more likely to cite safety, and 15 percentage points more likely to cite health concerns as enrollment reasons. Similarly, in 2019-20, those parents were two percentage points more likely to cite academic reasons, nine percentage points more likely to cite safety related reasons, and 13 percentage points more likely to cite health concerns as reasons for enrollment.

Table 4
Linear Probability Estimates of Reasons for Enrollment in 2018-19

Variables	H1: Academic	H2: Safety	H3: Health
SPED	0.0571***	0.0997***	0.148***
	(0.00555)	(0.00617)	(0.00702)
Student characteristics	X	X	X
Grade FE	X	X	X
School FE	X	X	X
Constant	0.721***	-0.00495	0.0372***
	(0.0124)	(0.00886)	(0.00698)
Observations	103,245	103,245	103,245
R-squared	0.037	0.051	0.045

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5
Linear Probability Estimates of Reasons for Enrollment in 2019-20

Variables	H1: Academic	H2: Safety	H3: Health
SPED	0.0193***	0.0863***	0.132***
	(0.00549)	(0.00717)	(0.00743)
Student characteristics	X	X	X
Grade FE	X	X	X
School FE	X	X	X
Constant	0.837***	0.105***	0.0616***
	(0.00990)	(0.0111)	(0.00852)
Observations	110,762	110,762	110,762
R-squared	0.016	0.046	0.043

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 reports estimates from linear probability models to predict the likelihood of returning for parents of students with disabilities who cited academic enrollment factors. We found that, after controlling for student characteristics, variations in student and school time-invariant characteristics, and the fact the students were clustered at the school level, students with disabilities whose parents cited academic enrollment factors were five percentage points less likely to return to the cyber school next year.

Table 6
Linear Probability Estimates of Reasons for Returning in 2019-20

Variables	H4: Return
SPED	0.0454**
	(0.0183)
Academic	0.0511***
	(0.0113)
SPED*Academic	-0.0507***
	(0.0132)
Student characteristics	X
Grade FE	X
School FE	X
	(0.00536)
Constant	0.116***
	(0.0366)
Observations	94,820
R-squared	0.347

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

In short, H1 is supported. Across two school years, parents of students with disabilities were relatively *more likely* than other parents to cite academic factors in their reasons for enrolling in National Cyber. On the other hand, the data did not support H2, which predicted that parents of students with disabilities would be relatively *less likely* than others to cite safety factors like bullying in their reasons for enrolling in National Cyber. In fact, parents of students with disabilities were relatively *more likely* to cite safety reasons for enrollment. Similarly, contradicting H3, parents of students with disabilities were relatively *more likely* than others to cite health factors in their reasons for enrolling in National Cyber. *Generally, compared to other parents, parents of students with disabilities were more likely to cite a greater*

number and range of reasons for enrolling in National Cyber. This fits with prior research on parents of students with disabilities, which indicates that they often see considerable conflict with and exhibit negative affect toward their traditional public schools (Lake, 2010; Valle, 2009).

Finally, results also undermine H4: Parents of students with disabilities citing academic factors in choosing cyber schooling were somewhat *less likely*, rather than more likely, to keep their children enrolled in National Cyber the following year. Possibly, as suggested by Ahn and McEachin (2017) these students face relatively severe challenges, and their parents are relatively more willing to make rapid changes in response to these challenges.

DISCUSSION

This paper makes a unique contribution because of the large n data set, and as the first to report reasons for choosing cyber charter schools in multiple states, comparing responses by designated student disability status. Findings indicate that the parents of students with disabilities in the study were more likely to report academic, social, and safety factors as important in the decision to select a cyber charter school. *They offered more reasons for leaving their prior schools and cited a greater number of push factors.* This is similar to findings from prior research regarding parents of students with disabilities in in-person schooling (e.g., Valle, 2009) and parents of students with disabilities in cyber schools (Tonks et al., 2020). Regarding student persistence, the findings indicate that there is a significant relationship between some stated reasons for attending and whether students remain enrolled in the school, but in some cases the relationship is the opposite of what was expected. Also, students were significantly less likely to persist in the cyber school if their parents cited academic factors as important in the decision to select a cyber school, which is particularly interesting considering prior research indicating relatively high parental satisfaction with their children's academic outcomes in cyber schools (Burdette & Greer, 2014). This may reflect differences between our large n study, compared to Burdette and Greer's convenience sample of 119 parents. Alternatively, it may reflect the substantial challenges faced by students with disabilities who are learning online. Parents may also be reluctant to complain when trying a cyber school as a last option and may simply change schools again (Rice et al., 2019). As Valle (2009) indicated, parents of students with disabilities are quick to respond to their children's challenges, thus their lack of persistence in our study may be a direct response to challenges with accessibility to online tools and instructional materials (Hashey & Stahl, 2014; Avarado-Alcantar & Keeley, 2020), particularly given the substantial multimedia content that is used in cyber schools (Rice & Ortiz, 2020). Finally, this re-

sult may reflect the current interactions occurring between teachers, special education case managers, school level special education administrators, and regional directors whose different ways of interrelating with students with disabilities and their parents may conflict with each other (Rice & Carter, 2015).

This paper is particularly timely because, as a result of the COVID-19 pandemic, a large percentage of U.S. and world students attended de facto cyber schools last school year (Marshall & Bradley-Dorsey, 2020), making it vital to learn more about these options. Further, national polling data find some likelihood that a significant percentage of students will remain in cyber options of one type or another after in-person schools fully reopen post-pandemic (Henderson et al., 2020). This means that cyber schooling generally and cyber charter schools will likely make up a large and possibly growing education sector for some time. Accordingly, for both theoretical and practical reasons we need to know more about the parents choosing these schools, why they choose the schools, and, potentially, how in-person schools can compete with them. Conversely, we also need to know more about the agencies, universities, and other entities that are involved with making decisions that impact online students with disabilities. Future research should consider following Rice and Deschaine's (2020) recommendations that these groups increase collaboration to develop specific professional development for all stakeholders of online special education students. Efforts like these can offer a more holistic picture of the various factors that influence the educational choices and experiences of online students with disabilities and their parents.

DECLARATIONS

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