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Enrollment of Students with Disabilities in Charter Schools: Contemporary National and State Level Findings

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Abstract: There is no national study examining the rate of enrollment of students with disabilities in charter schools. We examined whether students with disabilities were significantly less likely to enroll in charter schools as compared to non-charter public schools accounting for state level variation using data for the entire national population. We utilized data from the Civil Rights Data Collection under the U.S. Department of Education for the 2011-2012 and 2013-2014 academic years. These nationwide and contemporary data provided school-level numbers of students with disabilities receiving special education services under the Individuals with Disabilities Education Act (IDEA) and charter school status. We performed hierarchical linear modeling to examine for differences in the percentages of students with disabilities under IDEA between charter and non-charter schools, which revealed significantly less students with disabilities enrolled in charter schools at the national and state level. Additionally, we identified and ranked states according to the degree of discrepancy in the percentages of students with disabilities under IDEA between charter and

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non-charter schools.
Keywords: charter schools; school choice; special education; students with disabilities

La matrícula de alumnos con discapacidad en charter schools: Resultados contemporáneos a nivel nacional y estatal

Resumen: Hay en el estudio del país examinar el ritmo de la inscripción de los estudiantes con discapacidad en charter escuelas. Se ha comprobado que los estudiantes con discapacidad son menores que la probabilidad de que se inscriban en charter de las escuelas que se comparan a no contables de las cuentas públicas de estado para la variable de estado establecida utilizando fecha para la población de la población. Hemos utilizado fecha de la the Civil Rights Data Collection del Departamento de Educación de los Estados Unidos para el 2011-2012 y 2013-2014 academic years. Estos nacionales y contemporáneos de datos de nivel de referencia de los números de estudiantes con discapacidad reciben servicios de educación especial bajo los Individuals with Disabilities Education Act (IDEA) y charter school status. Se trata de jerárquicas lineales de modelado para examinar las diferencias en los porcentajes de los estudiantes con discapacidad en IDEA entre charter y non-charter de las escuelas, que muestran diferencias significativas de los estudiantes con discapacidad en charter de las escuelas en el nivel nacional y de nivel. Además, hemos identificado y clasificado los estados según el grado de discrepancia en los porcentajes de los estudiantes con discapacidad bajo IDEA entre charter y no charter.
Palabras claves: charter schools; escuela elección; educación especial; estudiantes con discapacidad

A matrícula de alunos com deficiência em escolas charter: Resultados contemporâneos em nível nacional e estadual

Resumo: Há um estudo no país para examinar a taxa de matrícula de alunos com deficiência em escolas charter. Ficou provado que os alunos com deficiência são menores do que a probabilidade de serem matriculados em escolas charter que são comparados a contas públicas públicas não responsáveis pela variável estadual estabelecida usando data para a população da população. Usamos a data da Civil Rights Data Collection do Departamento de Educação dos Estados Unidos para os anos letivos de 2011-2012 e 2013-2014. Esses números de linha de base de dados nacionais e contemporâneos de alunos com deficiências recebem serviços de educação especial de acordo com a Individuals with Disabilities Education Act (IDEA) e o status de escola charter. Trata-se de hierarquias de modelagem linear para examinar as diferenças nas porcentagens de alunos com deficiência no IDEA entre escolas charter e não charter, que mostram diferenças significativas de alunos com deficiências em escolas charter em nível nacional e internacional. de nível. Além disso, identificamos e classificamos os estados de acordo com o grau de discrepância nas porcentagens de alunos com deficiências no IDEA entre o afretamento e o não-afretamento.
Palavras-chave: escolas charter; escolha escolar; educação especial; alunos com deficiências

Introduction

Charter schools have become a fixture of public education in the United States. These schools are similar to public schools in many ways, but are distinct in the fact that these schools typically have a specific contract or charter in which to operate autonomously (Rhim & McLaughlin, 2007). Charter schools were conceptualized as a remedy to improve educational outcomes by providing an alternative to public schools (Seltzer, 2013). Despite operating with greater autonomy and flexibility, charter schools must adhere to the federal requirement to provide free appropriate public education (FAPE) within the least restrictive environment (LRE) to all children under the Individuals with Disabilities Education Act (Levesque, 2011). The requirements of FAPE and LRE together are what form the core of inclusive practices for children with disabilities. The overarching purpose of IDEA, as it initially passed as the Education of All Handicapped Children Act of 1975, is two-fold. First, IDEA is an anti-discrimination measure conceived in the spirit of the civil rights movement for political and social justice (Harr-Robins et al., 2012). Second, IDEA promotes educating children with disabilities in a similar way to children without disabilities so that these children mature to become self-sufficient adults that require less public assistance and can contribute in meaningful ways (Palmaffy, 2001; Seltzer, 2013).

The civil rights movement with respect to education emphasized equity through both legislation and court rulings at the federal level. While Brown vs. Board of Education in 1954 was a seminal, landmark court ruling with respect to the racial desegregation of the schools (Harr-Robins et al., 2012), Section 504 of the Rehabilitation Act of 1973 stated that any recipient receiving federal funds cannot discriminate against individuals with disabilities (Aron & Loprest, 2012). As all public schools receive some amount of federal funding, Section 504 was extended to students with disabilities stating that students should have similar access to the education received by students without disabilities. The Rehabilitation Act was the first time federal civil rights protections included individuals with disabilities (Aron & Loprest, 2012). In 1975, IDEA was passed and provided that children with disabilities were entitled to a free, appropriate public education (FAPE) in the least restrictive environment (LRE) alongside children without disabilities. This phrase from IDEA initiated the path to creating inclusive learning environments for children with disabilities to be educated with their non-disabled counterparts.

IDEA as passed in 1975 acknowledged what had been found twenty years earlier in the Brown decision from 1954 that separate was inherently unequal. Before the passage of IDEA in 1975, "only one in five children with identified disabilities attended public school," (Aron & Loprest, 2012, p. 100). Additionally, many states specifically excluded students with certain disabilities such as those children with sensory impairments (i.e., being visually or hearing impaired) as well as those children with intellectual disabilities or emotional/behavioral disorders (Aron & Loprest, 2012). While significant strides have been made for students with disabilities, the full realization of IDEA remains elusive as schools struggle with the full inclusion of students with disabilities. Additionally, Blanchett (2009) and others have questioned whether special education placement has not been employed as a mean of resegregating schools by disproportionately identifying children from African American backgrounds as disabled. Given this claim of resegregation, the full realization of IDEA in providing FAPE in the LRE should continue to be vigorously pursued.

Theoretical Framework

Bagley (2006) noted how the emergence of charter schools has been part of a greater discussion on school choice. As part of this greater debate on school choice, Chubb and Moe (1990)

proffered a market theory of school choice. Chubb and Moe posited that when parents have choice among schools that schools would compete and produce better options for students as part of a market economy for schools. Parents being provided with more choices for their students has manifested in many ways (i.e., vouchers and specialized/magnet schools). Another manifestation of school choice was the emergence of charter schools. However, Bagley (2006) has noted that schools have begun to influence the selection of students rather than students and their families selecting schools in a period of post-market theory for school choice. Bagley (2006) explains this inversion of school choice, schools are selecting students as the result of the demand for well-performing schools in many cases has outstripped the supply of these schools.

Gewirtz (2002) noted this phenomenon of school choice being inverted as being an unintended and unforeseen circumstance of school choice policy being implemented into practice. This inversion of school choice takes place when schools are influencing directly and indirectly the selection of students and their families rather than parents selecting schools for their students amongst schools that compete with each other for students. Welner (2013) discussed twelve ways in which charter schools influence the enrollment of students. These twelve ways were termed the "dirty dozen," (Welner, 2013, p. 1) implicitly noting this inversion of school choice from its intended path. These dozen ways have varied from the marketing materials that a school produces that, "can send distinct messages about who is welcome and who is not," (Welner, 2013, p. 3) to burdensome application procedures and access to transportation (Marshall, 2017).. Students with disabilities are often considered less desirable students for charter schools given the emphasis on performance as well as the financing of special education providing few incentives.

Charter School Practices

Several scholars have questioned whether charter schools consistently provide free appropriate public education to children with disabilities and whether the number of enrollees with special needs is proportional to that of non-charter public schools (e.g., Estes, 2004, 2009; Rhim & McLaughlin, 2007). This speculation seems warranted considering that charter schools have been found to vary in their approach to defining educational services offered to students with disabilities, inadequate in documenting the impact of the services provided, and lacking in special education personnel (Ahearn, Lange, Rhim, & McLaughlin, 2001). Additionally, it has been documented that some charter schools practice cropping out of students with disabilities by steering them to non-chartered, public schools (Lacireno-Paquet, Holyoke, Moser, & Henig, 2002). A similarly discriminatory practice is that of counseling out students from charter schools once it is learned that they have a disability (e.g., Fiore, Harwell, Blackorby, & Finnigan, 2000; Garda, 2012; Rhim, Lange, Ahearn, & McLaughlin, 2007; Welner & Howe, 2005; Zollers & Ramanathan, 1999). In the case of counseling out of students, charter schools may suggest to parents that their school is not an appropriate fit for their child (Fiore et al., 2000) or that the child's needs exceeded the resources available at the school (Welner & Howe, 2005).

While the practice of counseling out students has been questioned by some scholars as lacking empirical evidence (Winters, 2015; Zimmer & Gaurino, 2013) and some have alluded to this phenomenon being more an issue of selection bias on the part of parents (e.g., Booker, Gilpatric, Gronberg, & Jansen, 2007; Hanushek, Kain, Rivkin, & Branch, 2007). The issue of selection bias on the part of parents is however, inextricably intertwined with their interactions with a charter school. A charter school offering a chilly reception with a reluctance to provide accommodations will certainly influence whether a parent of a child with a disability decides to enroll. Selection bias is difficult to untangle without taking into account the interactions a parent may have with a charter school. The presence of selection bias, however does not deflect responsibility from charter schools

in the lower enrollment of students with disabilities. If we were to hypothetically replace the word, disability with race, ethnicity, or gender, we would be disturbed if scholars explained away the lower enrollment of students from ethnic minority backgrounds in any type of school as a function of the selection bias on the part of parents. Disability is just as much an integral part of the fabric of human diversity and the lower enrollment of students with disabilities in charter schools should not be explained away. We should note that charter schools do appear to serve comparatively more students from African American and Latino(a) backgrounds than non-charter schools, which has been attributed to the location of many charter schools in urban areas (Berends, 2015; Epple, Romano, & Zimmer, 2015). However, Frankenberg, Siegel-Hawley, and Wang (2010) note that this has perpetuated segregated school environments for children from African American and Latino(a) backgrounds. Frankenberg et al. (2010) note that for students from African American backgrounds who attend charter schools are actually more "intensely segregated" (p. 4) with 90% to 100% being from under-represented minority backgrounds as compared to their counterparts in traditional public schools.

Alternatively, some research has indicated that a more plausible reason for the lower enrollment of students with disabilities at charter schools may simply be that of available resources to serve the needs of children with disabilities as they are directly related to cost, especially for those schools that are operated for-profit (Miron, Urschel, Mathis, & Tornquist, 2010). Many charter schools operate based upon free market principles and as a result, may, "offer a parallel school system for some but not all students," (Waitoller & Thorius, 2015, p. 30). Indeed, Miron et al. (2010) found that for-profit charter schools did appear to enroll less students with disabilities than non-profit charter schools. From the perspective of charter schools, Kose (2013) notes a child or children with severe enough disabilities could likely bankrupt a charter school when requiring additional personnel as well as individualized technology devices for communication and educational tasks such as for when reading or interacting with materials. Thus, it is not surprising that, "charter schools may selectively market themselves to families," (Epple, Romano, & Zimmer, 2015, p. 7). In acknowledging this potential for the needs of children with disabilities to exceed resources available at charter schools, special education cooperatives like those utilized across rural school districts have been suggested as a solution (O'Neill & Rhim, 2015). Conversely, it is important to acknowledge the emerging role of niche or haven charter schools in serving the needs of students with disabilities such as charter schools specifically for students with Autism Spectrum Disorder (Decker, Seitz, & Kulwicki, 2015; Eckes, 2015), which may be better prepared to serve the needs of these children more adequately than public non-charter schools. We can acknowledge some merit to this argument but we can not accept it at face value given the history of how individuals with disabilities have been treated by our educational system and broader society, thus we must be cautious in our evaluation of these schools. These haven or niche charter schools can result in school environments that are intensely segregated violating the spirit of a free appropriate public education in the least restrictive environment as well as the civil rights movement. An inclusive learning environment that includes students with and without disabilities is considered an essential component of a free appropriate public education in the least restrictive environment (e.g., Villa & Thousand, 2005; Yell & Christle, 2017). An inclusive learning environment cannot be achieved if all of the students in the school have a disability.

Literature on Enrollment

In reviewing the literature on the enrollment of children with disabilities in charter schools, it appears that most analyses have been restricted to data particular to select states or regions (e.g., Estes, 2009; Hehir, 2010; Rhim & McLaughlin, 2007; Setren, 2015). For instance, Hehir (2010)

examined data for the state of Massachusetts and found that significantly fewer students with disabilities were enrolled in charter schools as compared to non-chartered public schools. Rhim and McLaughlin (2007) found a similar discrepancy in the number of students with disabilities enrolled in charter schools as compared to non-chartered public schools in California. However, in examining charter schools in Texas, Estes (2009) found comparable rates of students with disabilities enrolled in charter (12.5%) and non-charter, public (11.5%) schools. Thus, variation in the percentage of children with disabilities enrolled in charter versus non-charter schools does appear to exist by state, which may be a function of how charter schools are authorized and regulated by state.

We have reviewed the extant literature and there does not appear to be a peer-reviewed study that examines whether children with disabilities enroll in charter schools at significantly lower rates as compared to non-charter public schools across the nation accounting for state level variations. Three non-peer-reviewed studies were found that examined this issue nationally. The first of which was conducted over fifteen years ago and examined children with disabilities enrolled in charter schools across 27 states (RPP International, 2000). In this study, the authors found that lower percentages of children with disabilities were enrolled in charter schools as compared to non-charter public schools. However, this study did not statistically account for state level variations to provide a national estimate. Additionally, this study retained charter schools designated as especially serving children with disabilities as special education schools and other alternative schools, which would appear to under-estimate the discrepancy in enrollment between charter and non-charter public schools.

The second and third non-peer-reviewed studies were a report from the General Accounting Office (GAO, 2012) and a report from the National Center for Special Education in Charter Schools (Rhim, Gumz, & Henderson, 2015), both which descriptively reiterated the under-enrollment of students with disabilities in charter schools. However, neither study accounted for state level variations and included all charter schools even those focusing on serving children with disabilities that again under-estimates the extent of the discrepancy (GAO, 2012; Rhim, Gumz, & Henderson, 2015). More recently, Losen, Keith II, Hodson, and Martinez (2016) presented evidence that at the national level, enrollment percentages of students with disabilities at charter schools is lower than that of non-charter schools, yet their analysis did not examine state level data or account for these variations. Accounting statistically for this state level variation is important as states provide the legislative and regulatory framework that governs charter schools (Rhim, Ahearn, & Lange, 2007). Nationally, Miron et al. (2010) did examine the enrollment of students with disabilities amongst charter schools comparing non-profit and for-profit charter schools. The lack of data regarding traditional public schools precluded the comparison of enrollment between charter versus non-charter public schools.

Purpose

The purpose of this study was to examine the number of students with disabilities enrolled in charter versus non-charter public schools. We examined the percentage of students receiving special education services by school comparing charter and non-charter public schools across the United States. The current study provides the most complete and contemporary examination of the enrollment patterns of students with disabilities comparing charter and non-charter schools across the United States. Using data from the Civil Rights Data Collection, data from 46 states including the District of Columbia were available for analysis to provide a nationally representative picture. Additionally, the analyses conducted omit charter schools designated as special education or alternative schools from analyses to obtain a more accurate estimate as to the possible discrepancy

of students with disabilities enrolled between charter versus non-charter public schools. Finally, in the current study, we have identified and ranked states by the degree of any discrepancy in the enrollment of students with disabilities between charter versus non-charter public schools.

Method

Sample

Data were obtained from the public use 2011-2013 and 2013-2014 Civil Rights Data Collections under the Department of Education Office of Civil Rights (U.S. DOE, 2012, 2016), which surveyed approximately 95,500 schools across the fifty states including the District of Columbia representing approximately 50 million students from pre-K to 12th grade in public schools during the 2011-2012 academic year. Given the purpose of the current study, schools that were designated as special education or alternative schools (and thus students) were subsequently removed from analyses. For the 2011-2012 school year data, the resultant sample size was 48,767,882 students across 88,497 schools in the United States retaining approximately 98% of the total sample. Approximately 5.4% (n = 4,800) being charter schools and 94.6% (n = 83,677) being non-charter schools. Of the students, approximately 11.9% (n = 5,795,018) were students receiving special education services under IDEA. We retained approximately 95% of the sample of students receiving special education services despite removing schools designated as special education or alternative schools. Only approximately 5% (n = 2,849) of special education schools were charter schools located across 26 states with the states of California (n = 33) and Ohio (n = 32) having the most. Approximately 6% (n = 297) of alternative schools were charter schools located across 28 states with the states of California (n = 33) and Ohio (n = 32) having the most. We did not discern a geographical pattern in the intersection of charter school status with being an alternative or special education school. We also should note that an additional approximately 1.5% (n = 746,923) were students receiving special education services under Section 504 of the Rehabilitation Act.

For the 2013-2014 school year data, the resultant sample size was 49,209,558 students across 88,950 schools in the United States retaining approximately 98% of the total sample. Approximately 6.4% (n = 5,674) being charter schools and 93.6% (n = 83,276) being non-charter schools. Of the students, approximately 11.8% (n = 5,840,158) were students receiving special education services under IDEA. We retained approximately 96% of the sample of students receiving special education services despite removing schools designated as special education or alternative schools. Only approximately 5% (n = 108) of special education schools were charter schools located across 23 states with the states of Florida (n = 33) and Ohio (n = 32) having the most. Approximately 6% (n = 297) of alternative schools were charter schools located across states with the 26 states of Arizona (n = 53) and Florida (n = 52) having the most. We did not discern a geographical pattern in the intersection of charter school status with being an alternative or special education school. We also should note that an additional approximately 1.8% (n = 910,092) were students receiving special education services under Section 504 of the Rehabilitation Act yet, we focused on students receiving special education services under IDEA. In the current study, we focused on students receiving special education services under IDEA.Additionally, we retained schools regardless of magnet school status. Tables 1 provides the descriptive statistics for the data for both 2011-2012 and 2013-2014 school years.

Table 1
Descriptive statistics by school and years

	2011-2012		2013-2014	
	n	%	*n*	%
Number of Charter Schools	5,293	5.5	6,054	6.3
Number of students attending charter schools	2,035,111	4	2,562,793	5
Number of students in special education schools	2,625	2.7	2,121	2.2
Number of students attending special education schools	416,809	0.8	357,174	0.7
Number of alternative schools	4,870	5.1	4,444	4.7
Number of students attending alternative schools	602,119	1.2	501,964	1.8
Number of students receiving special education services under IDEA	6,082,911	12.2	6,104,340	12.1

Measures

All measures were obtained from the Office of Civil Rights Data Collection, which collects data biennially. We conservatively excluded from our analyses states that did not have charter school laws for both school years of data collection (i.e., 2011-2012 and 2013-2014) or had substantial changes in their charter school law between rounds. Table 2 provides a reason for each state excluded from analyses. The percent of students receiving special education services under IDEA was calculated by taking the total number of students receiving special education services under IDEA divided by the total number of students in each school. The average percentage of students receiving special education services under IDEA was 12.4% (*SD* = 0.07) per school. The distribution of this variable was mostly normal with exception of slight negative skew with approximately 4.3% (*n* = 3,787) of schools reporting no students receiving special education services under IDEA. As a result of this modest non-normal distribution, we interpreted fixed effects with robust standard errors (Garson, 2013).

Table 2
Reason for exclusion from analyses by state

State	Exclusion Reason
Alabama	No charter school law for 2011-2012 & 2013-2014
Kentucky	No charter school law for 2011-2012 & 2013-2014
Maine	No charter school law for 2011-2012 & 2013-2014
Mississippi	According to the National Alliance for Public Charter Schools, the state of Mississippi enacted a "significant overhaul" (p. 96) of charter schools in 2013 limiting the ability to compare between 2011-2012 and 2013-2014.†
Montana	No charter school law for 2011-2012 & 2013-2014
Nebraska	No charter school law for 2011-2012 & 2013-2014
North Dakota	No charter school law for 2011-2012 & 2013-2014
South Dakota	No charter school law for 2011-2012 & 2013-2014
Vermont	No charter school law for 2011-2012 & 2013-2014
Washington	No charter school law for 2011-2012
West Virginia	No charter school law for 2011-2012 & 2013-2014

†(NAPCS, 2016).

Analyses

We employed hierarchical linear modeling techniques given that data were nested within states. Hierarchical linear modeling techniques permit for state-level variation in school data to be accounted. As charter schools were not consistently clustered under local education agencies as compared to typical public schools, we were unable to examine the influence of local education agency as a distinct level. Therefore, the model consisted of two levels. For the first level, we examined for school-level variation in the percent of students receiving special education services under IDEA. For the second level, we examined for state-level variation in the percent of students receiving special education services under IDEA as schools nested within states. Analyses were conducted using HLM (*v.* 7.0; Raudenbush, Bryk, & Congdon, 2011). After evaluating the unconditional or intercept-only model via χ^2 deviance testing, we provide the equations for the full, conditional model's level 1 and 2 equations along with the combined equation below:

Level 1:

$$\text{Percent\_IDEA} = \beta_0 + \beta_1(\text{Charter\_School}) + r$$

Level 2:

$$\beta_0 = \gamma_{00} + u_0$$

$$\beta_1 = \gamma_{10} + u_1$$

Combined:

$$\text{Percent\_IDEA} = \gamma_{00} + \gamma_{10}(\text{Charter\_School}) + u_0 + u_1(\text{Charter\_School}) + r$$

In these equations, the coefficient term β_0 represents the average percentage of students served under IDEA, β_1 introduces the dummy-coded variable of charter school status covariate, and *r* is the state level random effect. The term, γ_{00} is the grand mean or intercept and u_0 is the state-level random effect. The term, γ_{10} estimates the effects of the covariate of charter school status on the intercept and u_1 is the state-level random effect according to charter school status. To measure effect size, we calculated a Cohen's *d* value based upon HLM parameter estimates using the following formula by Raudenbush, Spybrook, Liu, and Congdon (2005):

$$d = \gamma/(\sqrt{(\tau_{00} + \sigma\text{^}2)})$$

In this equation, τ_{00} represents the between-class variance (i.e., variance between states) and σ^2 is the within-class or residual variance (i.e., variance within states), which when added together equal the total variance (Raudenbush & Bryk, 2002). This equation is functionally equivalent to the Hedges, Pustejovsky, and Shadish (2012) equation. Given how large the CRDC samples were, results tended to be statistically significant ($p < .01$), which may be considered an artifact of standard errors being incredibly small as standard error (in its most basic form) is standard deviation divided by the square root of the sample size. Our large sample size drives down the values for the standard errors, thus many mean differences can appear statistically significant. As a result, we have emphasized practical significance through use of effect sizes, namely Cohen's *d* values. Cohen's *d* values of |.20|, |.50|, |.80| and greater are considered as small, medium, and large values respectively (Cohen, 1988). For the purposes of the study, *d* values of -.20 and greater were considered practically significant as being at least small according to Cohen (1988).

Results

We first examined the unconditional or null model, where we included no covariates in the model examining state variation in the percentage of students receiving special education services under IDEA. For the 2011-2012 CRDC data, ICC results indicate that approximately 7.1% of the variance in the percent of students receiving special education services under IDEA may be accounted by variations in states. Thus, there appears to be a small variation in the percentage of students receiving special education services under IDEA that may be accounted for by state. For the 2013-2014 CRDC data, we found a similarly small variation with 7.2% of the variance in the percent of students receiving special education services under IDEA being accounted for by state. We next included the covariate of whether the school was a charter or non-charter public school. This model appeared to fit the data significantly better than the unconditional model for both 2011-2012 data, $\chi^2(2) = 650.62$, $p < .001$ and 2013-2014 data, $\chi^2(2) = 1{,}224.22$, $p < .001$. The charter schools were associated with a significantly lower percentage of students receiving special education services under IDEA as compared to non-charter schools, $\beta = -.0246$, $p < .001$, $d = -0.34$ for the 2011-2012 data as well as the 2013-2014 data, $\beta = -.0256$, $p < .001$, $d = -0.33$.

For 2011-2012 data, nationally, charter schools had an average of 9.8% of students receiving special education services under IDEA while non-charter schools had an average of 12.2% of students receiving special education services under IDEA. For 2013-2014 data, nationally charter schools had an average of 9.9% of students receiving special education services under IDEA while non-charter schools had an average of 12.4% of students receiving special education services under IDEA. Finally, we merged 2011-2012 and 2013-2014 CRDC data and then calculated a difference score in the percentage of students receiving services under IDEA between rounds of data collection by school. Results indicated no statistically significant difference in the percentage of students enrolled receiving services under IDEA between 2011-2012 and 2013-2014 school years, $\beta = -.0014$, $p = .37$. Table 3 provides the complete estimates of fixed effects with robust standard errors for 2011-2012, 2013-2014, and merged data indicating the difference in percentages of students enrolled receiving services under IDEA.

Table 3
Fixed effects with robust standard errors

Fixed Effect	Coefficient	Standard Error	*p*-value
2011-2012 data for Percent of IDEA enrollment			
For INTERCEPT1, β_0 INTERCEPT2, u_{00}	0.128404	.003011	< .001
For CHARTER_SCHOOL slope, β_1 INTERCEPT2, u_{10}	-0.024600	.005195	< .001
2013-2014 data for Percent of IDEA enrollment			
For INTERCEPT1, β_0 INTERCEPT2, u_{00}	0.128903	.003141	< .001
For CHARTER_SCHOOL slope, β_1 INTERCEPT2, u_{10}	-0.025616	.003891	< .001
Merged 2011-2012 and 2013-2014 data for Difference in Percent of IDEA enrollment			
For INTERCEPT1, β_1 INTERCEPT2, u_{00}	0.000044	0.000590	0.941
For CHARTER_SCHOOL slope, β_1 INTERCEPT2, u_{10}	-0.001370	0.001485	0.362

We should note that we additionally examined the percentage of students who were not White as a covariate in our analyses, in particular including the interaction of this variable with charter school status. Results indicated that the percentage of students who were not White and charter school status was not significantly associated with the percentage of students receiving special education services under IDEA, $\beta = 2.85$, $p = .97$.

By individual state, some states had larger differences in the percentage of students receiving special education services under IDEA between charter and non-charter schools. For the 2011-2012 data, these effect sizes ranged from Oklahoma with a $d = -1.53$ (CI_{95}: -1.71; -1.34) to Virginia with a $d = 0.87$ (CI_{95}: -0.23; 1.96). For the 2013-2014 data, these effect sizes ranged from Kansas with a $d = -1.18$ (CI_{95}: -1.22; -1.13) to Virginia with a $d = 0.65$ (CI_{95}: 0.57; 0.74). Table 4 provides the effect size in Cohen's d value as ranked by state along with 95% confidence intervals for the 2011-2012 and 2013-2014 data. This variation between charter and non-charter schools across states would appear to be consistent with other studies indicating variation across locales and states (e.g., Betts & Tang, 2016; Epple, Romano, & Zimmer, 2015). Figure 1 provides the forest plot of each Cohen's *d* value with 95% confidence intervals by state for each round of data collection (e.g., 2011-2012 and 2013-2014 school years). From the forest plot, the wider 95% confidence intervals for some states are more apparent such as for Virginia for both rounds of data and Iowa for the 2011-2012 data. Yet, for most states, data were consistent across both rounds of data collection.

Table 4
States ranked by degree of enrollment discrepancy for students with disabilities

	2011-2012 CRDC data				2013-2014 CRDC data			
State	Rank	*d*	95% CI		Rank	*D*	95% CI	
Oklahoma	1	-1.53	-1.71	-1.34	2	-0.99	-0.97	-1.01
New Hampshire	2	-1.34	-1.89	-0.78	4	-0.84	-0.79	-0.89
Delaware	3	-0.98	-1.21	-0.75	28	-0.22	-0.13	-0.31
Missouri	4	-0.93	-1.12	-0.74	8	-0.66	-0.65	-0.67
Arkansas	5	-0.92	-1.21	-0.62	7	-0.69	-0.67	-0.70
New Jersey	6	-0.69	-0.81	-0.57	5	-0.80	-0.78	-0.81
Tennessee	7	-0.62	-0.79	-0. 46	26	-0.26	-0.24	-0.28
Kansas	8	-0.58	-1.15	-0.02	1	-1.18	-1.13	-1.22
Colorado	9	-0.57	-0.70	-0.43	3	-0.87	-0.86	-0.88
Oregon	10	-0.56	-0.70	-0.42	16	-0.34	-0.33	-0.35
South Carolina	11	-0.55	-0.77	-0.32	19	-0.32	-0.30	-0.34
Wisconsin	12	-0.52	-0.66	-0.38	9	-0.62	-0.61	-0.63
Connecticut	13	-0.51	-0.76	-0.27	11	-0.45	-0.42	-0.47
Alaska	14	-0.50	-0.68	-0.32	15	-0.41	-0.39	-0.42
California	15	-0.45	-0.49	-0.42	17	-0.34	-0.33	-0.34
Louisiana	16	-0.45	-0.58	-0.32	20	-0.31	-0.30	-0.32
Indiana	17	-0.44	-0.68	-0.20	33	-0.08	-0.04	-0.11
Florida	18	-0.43	-0.50	-0.36	10	-0.61	-0.60	-0.61
Idaho	19	-0.42	-0.66	-0.18	18	-0.33	-0.31	-0.35
Utah	20	-0.41	-0.50	-0.33	29	-0.22	-0.21	-0.23
Michigan	21	-0.37	-0.44	-0.31	24	-0.27	-0.26	-0.27
District of Columbia	22	-0.36	-0.36	-0.35	35	-0.04	-0.02	-0.05
Arizona	23	-0.34	-0.42	-0.26	12	-0.43	-0.42	-0.43
Nevada	24	-0.33	-0.59	-0.07	14	-0.41	-0.39	-0.43
New York	25	-0.33	-0.45	-0.21	25	-0.27	-0.26	-0.28
Massachusetts	26	-0.32	-0.47	-0.17	27	-0.24	-0.22	-0.25
Rhode Island	27	-0.31	-0.53	-0.09	36	-0.03	-0.003	-0.05
New Mexico	28	-0.26	-0.39	-0.12	23	-0.27	-0.25	-0.29
Georgia	29	-0.17	-0.34	0.01	34	-0.08	-0.06	-0.09
Hawaii	30	-0.17	-0.48	0.15	13	-0.41	-0.39	-0.43
Texas	31	-0.12	-0.22	-0.02	30	-0.21	-0.20	-0.22
Illinois	32	-0.11	-0.33	0.10	38	0.12	0.13	0.11
Wyoming	33	-0.10	-0.99	0.79	6	-0.75	-0.69	-0.82
North Carolina	34	-0.06	-0.23	0.12	22	-0.30	-0.29	-0.31
Pennsylvania	35	-0.04	-0.20	0.12	31	-0.12	-0.10	-0.13
Iowa	36	-0.01	-1.04	1.02	21	-0.31	-0.15	-0.47
Ohio	37	0.002	-0.11	0.12	32	-0.08	-0.07	-0.09
Minnesota	38	0.06	-0.06	0.18	39	0.29	0.32	0.27
Maryland	39	0.42	0.23	0.61	37	0.11	0.12	0.10
Virginia	40	0.87	-0.23	1.96	40	0.65	0.74	0.57

* Shading indicates states with an under-enrollment of students receiving services under IDEA.

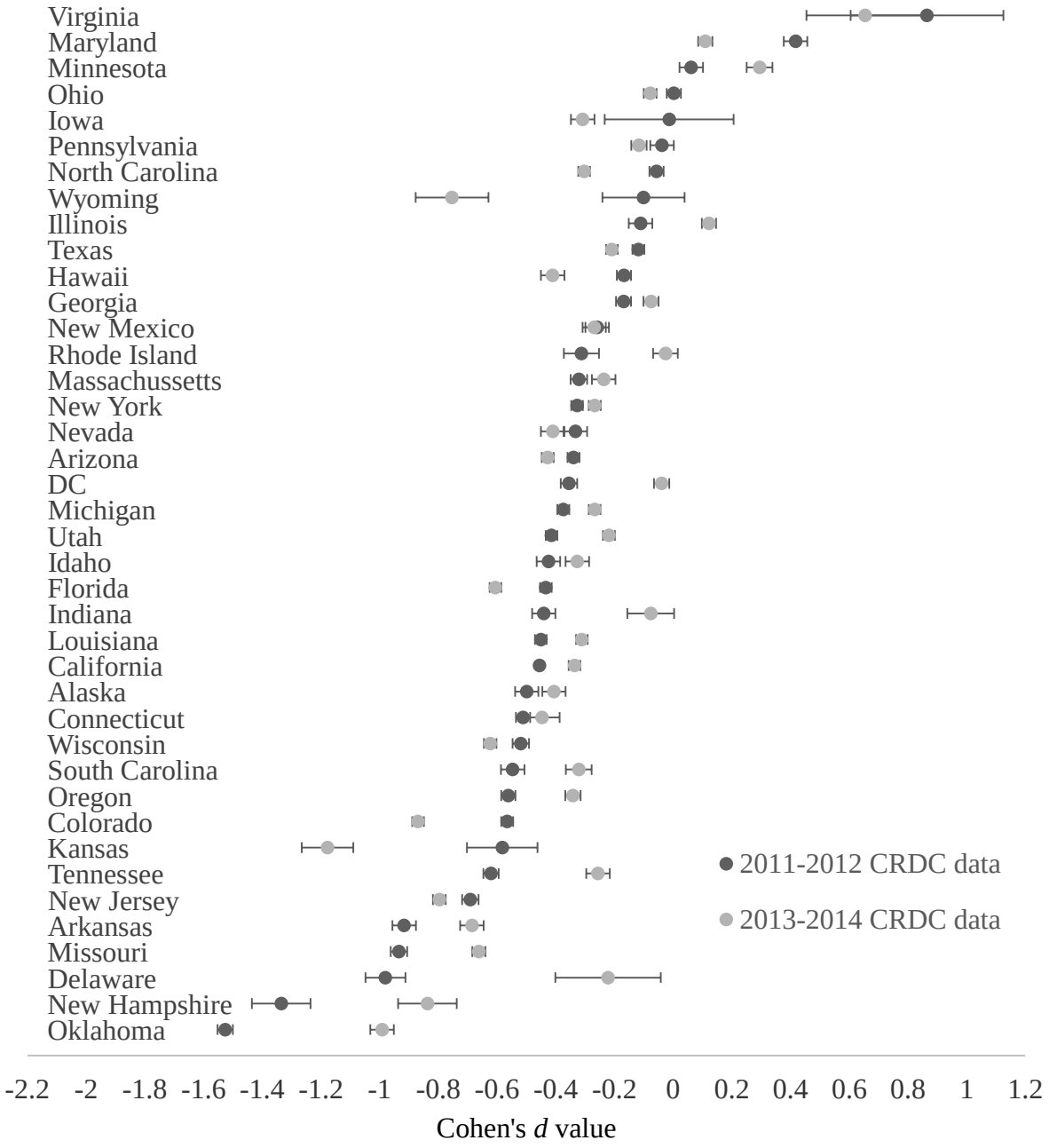

Figure 1. Forest plot of Cohen's d value by state with 95% confidence intervals

For approximately 24% of states in 2011-2012 (n = 12) and 20% of states (n = 10) in 2013-2014 school, there was no practically significant difference (i.e., may have been statistically significant at the .05 level or less but a d value less than |.20|) in the percentage of students receiving special education services under IDEA between charter and non-charter schools. For these states, there was no practically significant discrepancy in the enrollment of students receiving services under IDEA between charter and non-charter schools. With regard to under-enrollment of students receiving services under IDEA, for the 2011-2012 school year data, 55% of states (n = 28) and 59% of states (n = 30) for the 2013-2014 data, there was a practically

significant lower percentage of students receiving special education services under IDEA between charter schools versus non-charter schools (e.g., a *d* value greater than -.20). States that revealed a practically significant discrepancy between charter and non-charter schools ranged from $d = -1.53$ (Oklahoma) to $d = -0.26$ (New Mexico) for the 2011-2012 data and $d = 1.18$ (Kansas) to $d = -0.21$ (Texas) for the 2013-2014 data. Figures 2 and 3 provides a map of all 50 states plus the District of Columbia with corresponding shading according to the degree of the effect size for the 2011-2012 and 2013-2014 CRDC data respectively.

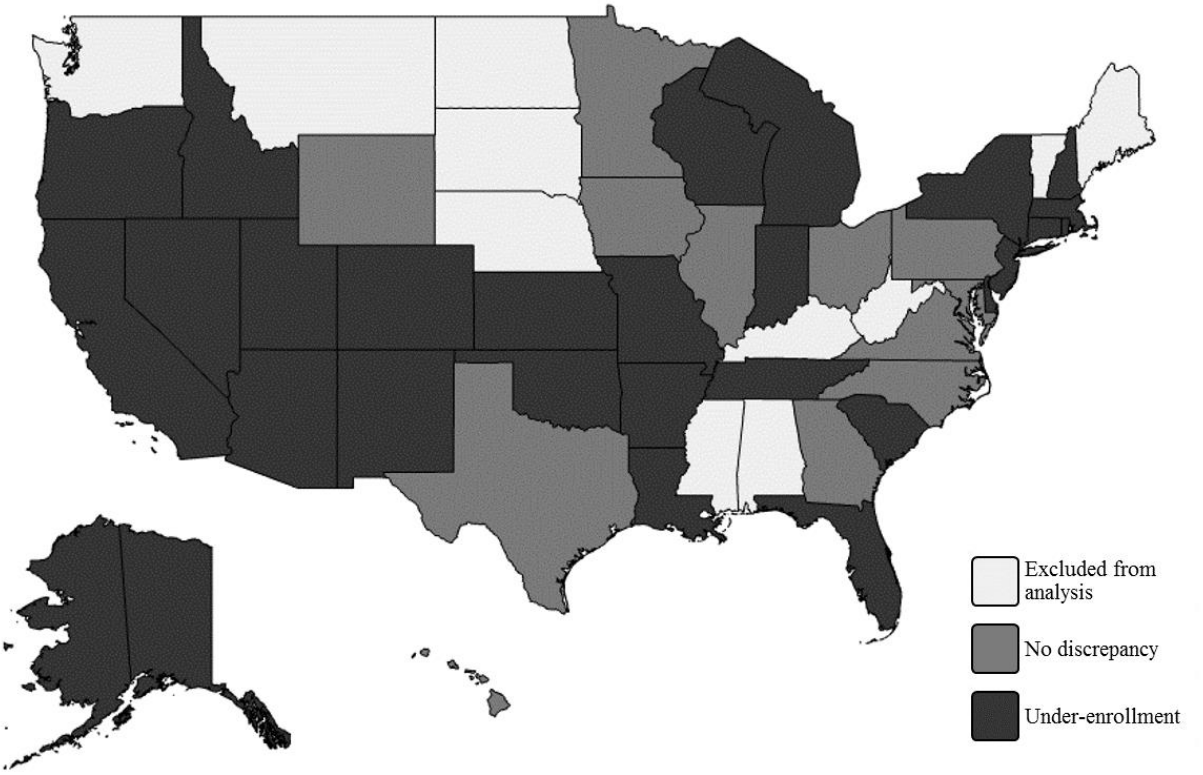

Figure 2. CRDC map for 2011-2012 data

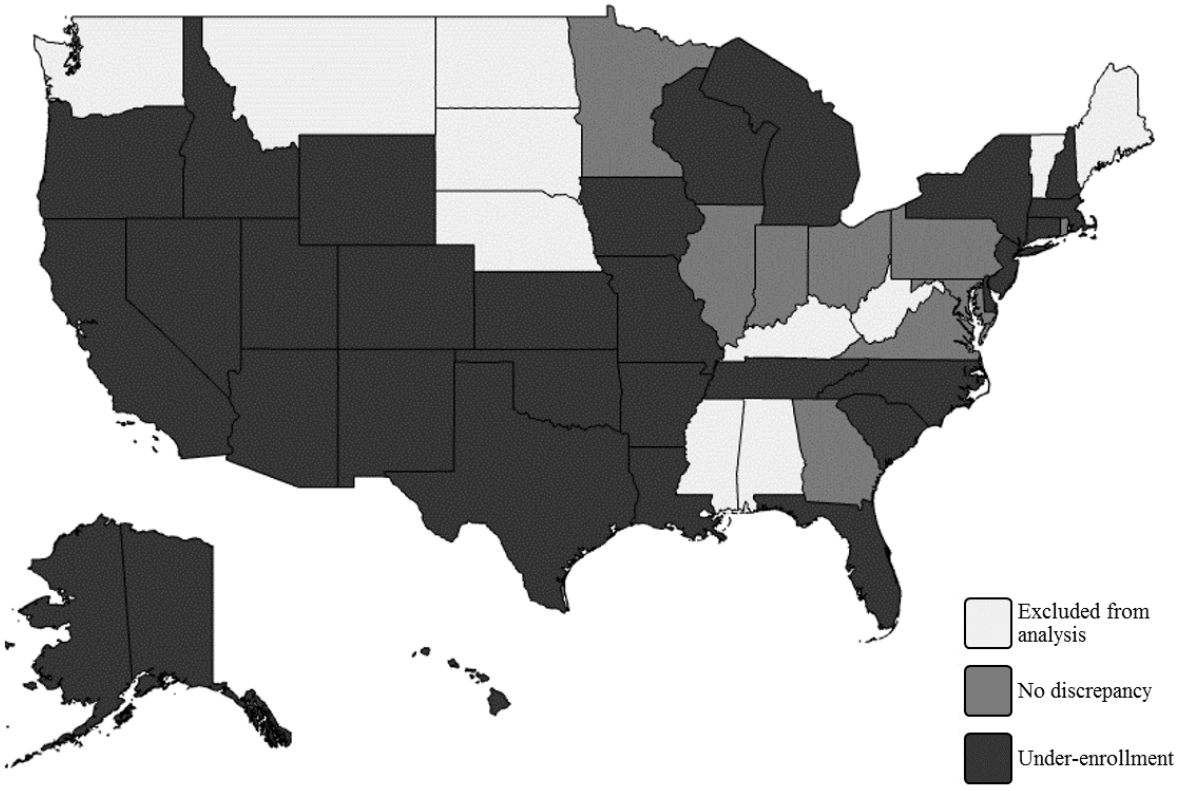

Figure 3. CRDC map for 2013-2014 data

Discussion

In the current study, we found that charter schools were associated with a significantly lower percentage of students receiving special education services under IDEA as compared to non-charter schools with a small effect size of d = -.30 (CI_{95}: -.37; .16). So, while charter schools had an average of 9.7% of students receiving special education services under IDEA, non-charter schools had a significantly higher average of 12.6% of students receiving special education services under IDEA. In accounting for state level variation, our results indicate that nationally there is a significant but small discrepancy in the enrollment of students with disabilities under IDEA in charter versus non-charter public schools. When disaggregating the data by individual states, it appears that the discrepancy in the enrollment of students with disabilities under IDEA varies widely from Oklahoma with a d = -1.53 (CI_{95}: -1.71; -1.34) to Washington with a d = 1.02 (CI_{95}: 1.00; 1.05). Please refer to Table 3 for complete information. We would suggest that both extremes of the d values are problematic (e.g., a d value of -1.00 or +1.00). A d value of -1.00 would indicate that a significantly fewer number of students with disabilities under IDEA enrolled in charter versus non-charter schools. A d value of +1.00 would indicate that a significantly higher number of students with disabilities under IDEA enrolled in charter versus non-charter schools. The issue of a practically significant (i.e., d > .20) percentage of more students with disabilities under IDEA enrolled in charter versus non-charter public schools defies the spirit of inclusion as inclusion requires both students with and without disabilities. So, while it may be well-intentioned for some charter schools to provide students with disabilities specialized learning environments to serve these needs, there is a well-

documented body of literature that indicates better educational outcomes for students with disabilities in inclusive learning environments (e.g., Dessemontet, Bless, & Morin, 2012; Farrell, Dyson, Polat, Hutcheson, & Gallannaugh, 2007; Rouse & Florian, 2006). This examination, however, is beyond the scope of the current study.

The primary concern remains that charter schools in a little over half of all states for both rounds of data collection (55% and 58% respectively for the 2011-2012 and 2013-2014 data sets) had a lower percentage of children with disabilities receiving services under IDEA as compared to non-charter public schools. These differences in over half of states were practically significant with a *d* value greater than 0.20. These results are not surprising given previous state level analyses but the current study does provide the most complete and contemporary examination of this issue. The maps (Figures 2 and 3) do appear to indicate that states located in the Western part of the United States appear to be more likely to have an under-enrollment of students with disabilities in charter schools as compared to non-charter, public schools. Both the states of California and Massachusetts (states specifically mentioned in the literature review) continued to have a practically significant discrepancy in the number of children with disabilities receiving services under IDEA enrolled in charter schools for both the 2011-2012 and 2013-2014 data. Thus, the results of Hehir (2010) for the state of California as well as Rhim and McLaughlin (2007) for the state of Massachusetts continue to persist with respect to the under-enrollment of students with disabilities in charter schools.

Funding

Differences in the enrollment of students with disabilities in charter schools according to state may be a function of the varied funding allocation mechanisms for special education across states. States in tandem with local education agencies provide approximately 91% of funding for special education services under IDEA while the federal government contributes the remaining 9% (Ahearn, 2010). Verstegen (2011) delineates four main allocation mechanisms for funding special education consisting of: per pupil; cost reimbursement; unit; and census. The majority of states appear to use a per pupil funding mechanism for special education that is weighted accordingly followed by cost reimbursement (i.e., after the fact), unit (i.e., number of students served), and census (i.e., total number of students in the district) allocation mechanisms. There appeared to be no associated pattern of the enrollment of students with disabilities in charter schools versus traditional public schools with state funding mechanism used for special education. Future research should further examine for patterns in state differences in the enrollment of students with disabilities between charter versus traditional, public schools. One reason for this lack of a clear connection between state funding mechanism for special education utilized and the enrollment of students with disabilities in charter versus traditional public schools is that IDEA requires "placement neutral" (Ahearn, 2010, p. 1) funding. In placement neutral funding, school districts cannot differentially fund special education according to learning environment so as not to reward the segregation of students with disabilities (Ahearn, 2010). As a result, for-profit charter schools would not have a means to increase funding according to placement thereby supplementing their bottom line. Maintaining an inclusive learning environment would receive the same amount of special education funding as an environment without inclusive supports. It would not be surprising if a charter school was reluctant to maintain an inclusive learning environment. In combination with the mandate of IDEIA has long been under-funded by the federal government (Ahearn, 2010), charter schools may have limited incentive to actively recruit students with disabilities given the costs associated with doing inclusion well. As a result, it is not surprising when students with

disabilities who are higher functioning or have less severe disabilities that are easier to include are creamed from the top by charter schools (Lacireno-Paquet, Holyoke, Moser, & Henig, 2002). These students would appear to be much more likely to be placed in less inclusive environments with less supports.

Limitations

In the current study, we did not disaggregate by type of disabilities as these numbers were suppressed in many cases due to low sample sizes per school. Thus, we were not able to evaluate discrepancies in charter school enrollments according to type of disabilities. Previous literature has indicated that charter schools tend to retain certain types of students with disabilities, which we were unable to replicate in the current study (Fiore et al., 2000). Additionally, we conservatively excluded from our analyses states that did not have charter school laws for both school years of data collection (i.e., 2011-2012 and 2013-2014) or had substantial changes in their charter school law between rounds (see Table 1). Thus, findings may not be considered generalizable to these or all states but the current study does represent the most nationally representative study available. In the current study, we also excluded schools designated as special education or alternative schools as these schools would ostensibly have higher frequencies of students with disabilities and these schools appear to be more prevalent as charter versus non-charter, public schools. These schools, however, do not promote inclusion by predominantly serving children with special education needs and potentially excluding the typically developing students. Additionally, the CRDC did not contain data on private schools, which precluded their inclusion in our analyses, which would appear to provide some interesting comparisons (Berends, 2015). Finally, throughout the current study, we reiterate the term, students with disabilities under IDEA as there could be students with disabilities enrolled in these schools under 504 or not receiving special education services at all. These students not receiving services under IDEA but rather 504 or no services at all would generally be considered as having less severe disabilities, thus requiring less services, thus would ostensibly be less costly to educate for charter schools.

Conclusion

In conclusion, the current study found that nationwide, charter schools enrolled lower percentages of students with disabilities as compared to non-charter, public schools. Some authors have suggested that this phenomenon would largely appear to exist as the result of a selection bias on the part of parents occurring with respect to charter schools (e.g., Booker, Gilpatric, Gronberg, & Jansen, 2007; Hanushek, Kain, Rivkin, & Branch, 2007). This selection bias may be somewhat reciprocal in nature such that parents of children with disabilities may prefer non-charter, public schools given the larger scale of personnel and services provided by these schools in the context of a school district as the local education agency. Ultimately though, selection bias is inextricably intertwined between the parents and their interactions with the charter school, who may steer parents of children with disabilities away with a chilly or reluctant reception. Yet, the impact of selection bias is difficult to accurately examine without knowledge of the interactions a parent may have with a charter school. Additionally, if disability were replaced with race, ethnicity, or gender, we would not let the issue of selection bias on the part of parents have such credence in contemporary literature. If charter schools systematically under-enrolled students from ethnic minority backgrounds, selection bias would not be a viable argument in contemporary literature.

The far greater and more pernicious bias that confronts the charter school research is one of confirmation bias (see Nickerson, 1998) among researchers. There are scholars associated

with certain organizations that promote charter schools or more broadly, free market solutions for education (Powell, Oct. 2016). These potential conflicts of interest can create a situation where scholars are seeking evidence (e.g., variables and samples) that confirm the agenda of these organizations (which may align with the researcher's as well). This is confirmation bias, which we are all culpable to committing. Confirmation bias is not dishonest but it can create some substantial blindspots in research. While media such as *Education Week* have recently started to discuss this issue of potential conflicts of interest in charter school research (Powell, 2016), noting the use of organizations that are pro-charter schools to fund research rather than the charter schools themselves, scholarly journals appear to have trailed in the discussion and acknowledgement of this issue in charter school research. We suggest that at the very least, scholarly journals should require researchers to acknowledge in their articles the nature of their relationships with organizations that promote charter schools. To model such behavior, we conclude with a statement of our own.

Conflict of Interest Statement

The authors have no conflict of interest.

References

Ahearn, E. (2010). Financing special education: State funding formulas. In *Project Forum, National Association of State Directors of Special Education* (p. 1-50). Alexandria, VA: National Assocation of State Directors of Special Education.

Ahearn, E. M., Lange, C. M., Rhim, L. M., & McLaughlin, M. J. (2001). *Project SEARCH: Special education as requirements in charter schools*. [Final report]. Alexandria, VA: National Association of State Directors of Special Education.

Aron, L., & Loprest, P. (2012). Disability and the education system. *The future of Children*, *22*(1), 97-122. https://doi.org/10.1353/foc.2012.0007

Bagley, C. (2006). School choice and competition: a public-market in education revisited. *Oxford Review of Education, 32*(3), 347-362. https://doi.org/10.1080/03054980600775656

Berends, M. (2015). Sociology and school choice: What we know after two decades of charter schools. *Annual Review of Sociology*, *41*, 159-180. https://doi.org/10.1146/annurev-soc-073014-112340

Betts, J. R., & Tang, Y. E. (2011). The Effect of Charter Schools on Student Achievement: A Meta-Analysis of the Literature. Bothell, WA: National Charter School Research Project, Center on Reinventing Public Education. Available from: www.ncsrp.org.

Blanchett, W. J. (2009). A retrospective examination of urban education: From Brown to the resegregation of African Americans in special education—It is time to "go for broke". *Urban Education*, *44*(4), 370-388. https://doi.org/10.1177/0042085909338688

Booker, K., Gilpatric, S. M., Gronberg, T., & Jansen, D. (2007). The impact of charter school attendance on student performance. *Journal of Public Economics*, *91*(5), 849-876. https://doi.org/10.1016/j.jpubeco.2006.09.011

Chubb, J. E., & Moe, T. M. (1990). America's public schools: Choice is a panacea. *The Brookings Review, 8*(3), 4-12. https://doi.org/10.2307/20080159

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. (2nd ed.). Hillsdale NJ: Lawrence Erlbaum.

Decker, J. R., Seitz, K., & Kulwicki, B. (2015). Autism Charter Schools: Legally Vulnerable or Viable. *Indiana Journal of Law and Social Equality*, *3*, 1-28.

Dessemontet, R. S., Bless, G., & Morin, D. (2012). Effects of inclusion on the academic achievement and adaptive behaviour of children with intellectual disabilities. *Journal of Intellectual Disability Research*, *56*(6), 579-587. https://doi.org/10.1111/j.1365-2788.2011.01497.x

Eckes, S. (2015). Haven Charter Schools: Separate by Design and Legally Questionable. *Equity & Excellence in Education*, *48*(1), 49-70. https://doi.org/10.1080/10665684.2015.991159

Epple, D., Romano, R., & Zimmer, R. (2015). *Charter schools: A survey of research on their characteristics and effectiveness* (No. w21256). National Bureau of Economic Research. https://doi.org/10.3386/w21256

Estes, M. B. (2004). Choice for all? Charter schools and students with special needs. *The Journal of Special Education, 37*(4), 257-267. https://doi.org/10.1177/00224669040370040501

Estes, M. B. (2009). Charter Schools and Students With Disabilities How Far Have We Come? *Remedial and Special Education*, *30*(4), 216-224. https://doi.org/10.1177/0741932508315647

Farrell, P., Dyson, A., Polat, F., Hutcheson, G., & Gallannaugh, F. (2007). The relationship between inclusion and academic achievement in English mainstream schools. *School Effectiveness and School Improvement*, *18*(3), 335-352. https://doi.org/10.1080/09243450701442746

Fiore, T. A., Harwell, L. M., Blackorby, J., & Finnigan, K. S. (2000). Charter schools and students with disabilities: A national study. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

Frankenberg, E., Siegel-Hawley, G., & Wang, J. (2010). Choice without Equity: Charter School Segregation and the Need for Civil Rights Standards. Civil Rights Project/Proyecto Derechos Civiles.

Garda, R. A. (2012). Disabled Students' Rights of Access to Charter Schools Under the IDEA, Section 504 and the ADA. *Journal of the National Association of Administrative Law Judiciary*, 32, 516. Available at SSRN: http://ssrn.com/abstract=2072498 or http://dx.doi.org/10.2139/ssrn.2072498

Garson, G. D. (2013). *Hierarchical linear modeling: Guide and applications*. Los Angeles, CA: Sage.

Hanushek, E. A., Kain, J. F., Rivkin, S. G., & Branch, G. F. (2007). Charter school quality and parental decision making with school choice. *Journal of public economics*, *91*(5), 823-848. https://doi.org/10.1016/j.jpubeco.2006.09.014

Harr-Robins, J., Song, M., Hurlburt, S., Pruce, C., Danielson, L., Garet, M., & Taylor, J. (2012). The Inclusion of Students with Disabilities in School Accountability Systems. Interim Report. NCEE 2012-4056. *National Center for Education Evaluation and Regional Assistance*.

Hedges, L. V., Pustejovsky, J. E., & Shadish, W. R. (2012). A standardized mean difference effect size for single case designs. *Research Synthesis Methods, 3*(3), 224-239. https://doi.org/10.1002/jrsm.1052

Hehir, T. (2010). Charters: Students with disabilities need not apply? *Education Week*, *29*(19), 18-19.

Kose, L. K. (2015). Challenges of Charter Schools with Special Education: Issues of Concern for Charter School Authorizers and Service Providers. *Mid-Atlantic Education Review*.

Lacireno-Paquet, N., Holyoke, T. T., Moser, M., & Henig, J. R. (2002). Creaming versus cropping: Charter school enrollment practices in response to market incentives. *Educational Evaluation and Policy Analysis, 24*(2), 145-158. https://doi.org/10.3102/01623737024002145

Levesque, R. J. (2011). Individuals with Disabilities Education Act. In *Encyclopedia of Adolescence* (pp. 1420-1422). Springer New York. https://doi.org/10.1007/978-1-4419-1695-2_737

Losen, D. J., Keith, M. A., Hodson, C. L., & Martinez, T. E. (2016). *Charter schools, civil rights and school discipline: A comprehensive review*. Los Angeles, CA: The Center for Civil Rights Remedies.

Marshall, D. T. (2017). Equity and access in charter schools: Identifying issues and solutions. education policy analysis archives, 25, 83. https://doi.org/10.14507/epaa.25.2745

Miron, G., Urschel, J. L., Mathis, W. J., & Tornquist, E. (2010). *Schools without diversity: Education management organizations, charter schools, and the demographic stratification of the American school system*. Bolder, CO: Education and the Public Interest Center.

National Alliance for Public Charter Schools (NAPCS). (2016). *The Health of the Charter Public School Movement: A State by State Analysis* (2nd ed.). Washington, DC: National Alliance for Public Schools. Retrieved on September 7, 2016 from: http://www.publiccharters.org/wp-content/uploads/2016/03/Health-of-the-Movement_2016.pdf

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of general psychology*, *2*(2), 175. https://doi.org/10.1037/1089-2680.2.2.175

O'Neill, P. T., & Rhim, L. M. (2015). Equity at Scale: How Public Charter School Networks Can Innovate and Improve Services for Students with Disabilities. *National Alliance for Public Charter Schools*.

Palmaffy, T. (2001). Evolution of the federal role. In C. E. Finn Jr, A. J. Rotherham, & C. R. Hokanson (Eds.), *Rethinking Special Education for a New Century* (pp. 1-5). Washington, DC: Thomas B. Fordham Foundation and the Progressive Policy Institute.

Powell, D. (Oct. 2016). Charter School Funders Shouldn't Be Paying for Research on Charter Schools, Should They? Retrieved from *Education Week* at: http://blogs.edweek.org/edweek/K-12_Contrarian/2016/10/should_charter_schools_be_paying_for_research_on_charter_schools.html

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.

Raudenbush, S. W., Bryk, A. S., & Congdon, R. (2011). *HLM 7: Hierarchical linear and nonlinear modeling* [Computer software]. Lincolnwood, IL: Scientific Software International, Inc.

Raudenbush, S. W., Spybrook, J., Liu, X., & Congdon, R. (2005). Optimal Design for Longitudinal and Multilevel Research, (Version 3.01) [Computer software]. Available from www.wtgrantfoundation.org.

Rhim, L. M., Ahearn, E. M., & Lange, C. M. (2007). Charter school statutes and special education policy answers or policy ambiguity? *The Journal of Special Education, 41*(1), 50-63. https://doi.org/10.1177/00224669070410010401

Rhim, L. M., Gumz, J., & Henderson, K. (2015). *Key trends in special education in charter schools*. New York, NY: National Center for Special Education in Charter Schools.

Rhim, L. M., Lange, C. M., Ahearn, E. M., & McLaughlin, M. J. (2007). *Project Intersect research report# 7: Survey of charter school operators.* College Park: University of Maryland.

Rhim, L. M., & McLaughlin, M. (2007). Students with disabilities in charter schools: What we now know. *Focus on Exceptional Children, 39*(5), 1.

Rouse, M., & Florian, L. (2006). Inclusion and achievement: student achievement in secondary schools with higher and lower proportions of pupils designated as having special educational needs. *International Journal of Inclusive Education*, *10*(6), 481-493. https://doi.org/10.1080/13603110600683206

RPP International. (2000). The state of charter schools: 2000. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Seltzer, M. J. (2013). Chartering the way to a free and appropriate public education (FAPE): The challenges for charter schools to provide FAPE. *LUX: A Journal of Transdisciplinary Writing*

and Research from Claremont Graduate University, 2(1), 1-20. https://doi.org/10.5642/lux.201301.27

Setren, E. (2015). *Special education and English language learner students in Boston charter schools: Impact and classification.* Cambridge: Massachusetts Institute of Technology.

U.S. Department of Education. (2012). *CRDC Data Definitions 2011-2012.* Available at http://ocrdata.ed.gov/Downloads/2009-10CRDCDefinitions.doc

U.S. General Accounting Office (GAO). (2012). *Charter schools: Additional federal attention needed to help protect access for students with disabilities.* Government Accountability Office, Washington, D.C.

Verstegen, D. A. (2011). Public education finance systems in the United States and funding policies for populations with special educational needs. *Education Policy Analysis Archives*, *19*(21), 1-30. https://doi.org/10.14507/epaa.v19n21.2011

Villa, R. A., & Thousand, J. S. (Eds.). (2005). Creating an inclusive school. ASCD.

Waitoller, F. R., & Thorius, K. K. (2015). Playing hopscotch in inclusive education reform: Examining promises and limitations of policy and practice in the US. *Support for Learning*, *30*(1), 23-41. https://doi.org/10.1111/1467-9604.12076

Welner, K. G. (2013). The Dirty Dozen: How Charter Schools Influence Student Enrollment. *Teachers College Record.* [online], http://www.tcrecord.org ID Number: 17104.

Welner, K. G., & Howe, K. R. (2005). Steering toward separation: The policy and legal implications of "counseling" special education students away from choice schools. In Janelle Scott (ed.), *School Choice and Student Diversity: What the Evidence Says* (pp. 93- 111). New York, NY: Teachers College Press.

Winters, M. A. (2015). Understanding the gap in special education enrollments between charter and traditional public schools: Evidence from Denver, Colorado. *Educational Researcher, 20*(10), 1-9. https://doi.org/10.3102/0013189X15584772

Winters, M. A., Carpenter, D. M., & Clayton, G. (2017). Does Attending a Charter School Reduce the Likelihood of Being Placed Into Special Education? Evidence From Denver, Colorado. *Educational Evaluation and Policy Analysis*, 0162373717690830. https://doi.org/10.3102/0162373717690830

Yell, M. L., & Christle, C. A. (2017). The Foundation of Inclusion in Federal Legislation and Litigation. In *Handbook of Research on Classroom Diversity and Inclusive Education Practice* (pp. 27-52). IGI Global. https://doi.org/10.4018/978-1-5225-2520-2.ch002

Zimmer, R. W., & Guarino, C. M. (2013). Is there empirical evidence that charter schools "push out" low-performing students? *Educational Evaluation and Policy Analysis, 35*(4), 461-480. https://doi.org/10.3102/0162373713498465

Zollers, N. J., & Ramanathan, A. K. (1998). For-profit charter schools and students with disabilities: The sordid side of the business of schooling. *Phi Delta Kappan, 80*(4), 297.

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