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INDIANA UNIVERSITY
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A Longitudinal Study to Determine the Impact of Inclusion on Student Academic Outcomes

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Executive Summary Report

Purpose

The purpose of this study was to determine the impact of inclusion on the academic outcomes of students with disabilities.

Background

This study investigates the academic outcomes (Indiana State Test of Educational Progress ELA and Math scores), of a cohort of special education students in the state of Indiana placed in high, mixed and low inclusion settings. Students are followed from the third grade in 2013 through the eighth grade in 2018.

The methodology included comparative analyses of academic outcomes conducted between treatment and control group outcomes for students designated as high inclusion, mixed inclusion, and low inclusion. Propensity score matching was used in the creation of treatment and control groups to improve the balance of primary disability type and performance distributions.

In 2016, more than 60 percent of all students with disabilities spent 80 percent or more of their day in a general education classroom (Gilmour, 2018). Historically, students with disabilities lag behind their peers academically; a recent meta-analysis estimates that students with disabilities score 1.2 standard deviations below their non-disabled peers (Fuchs, Fuchs, Compton, Wehby, Schumacher, Gersten, & Jordan, 2015). Arguably, there has not been an issue more contentious than placement; inclusion of students with disabilities is the most controversial issue related to the education of students with disabilities (Bateman, Tankersley, Wills-Floyd & Alves, 2015; Kauffman & Badar, 2014b; Slee, 2011).

The more recent research seems to indicate that placement can make a difference in school and post-secondary outcomes for students with disabilities. However, because the body of research reports inconclusive findings as well as negative results, definitive relationships between placement and the predictors of success are yet to be established.

Methods

The study used a methodology (propensity score matching) that enabled a determination of the impact of inclusion upon student state assessments by comparing the outcomes of students included in general education classrooms with students like themselves in separate special education classrooms.

Propensity Score Matching

Propensity score matching is used to diminish the effects of structural bias in creating comparison groups with observational data. It represents a quasi-experimental design that allows for the closer approximation of causal relationships in the absence of randomized control trials. The goal of propensity score matching is to eliminate selection bias into either of two groups by selecting, as best as possible, twins from both groups based on a set of relevant and observed covariates (Becker, S. O., & Ichino, A., 2002).

Propensity matching was used to reduce the structural biases of the deliberative and intentional LRE placement for special education services process that precludes a random treatment design for investigating the research questions and test hypotheses associated with high and low inclusion. The inclusion research literature cites this structural bias in the

placement process as an explanation for the dearth of research into the relationship between inclusion and academic outcomes. Rojewski, Lee, and Greg (2015) postulate: *Lack of experimental control can explain the absence of comparative studies on inclusion. While random assignment is the best way to eliminate experimental bias, this is neither feasible nor desirable with educational interventions due to ethical logistic, and legal barriers (p. 211)*. Analysis was conducted to compare students in high inclusion, mixed inclusion and low inclusion using the following propensity matching variables: Third grade IRead scores, Third grade ISTEP+ ELA/ Math scores (Indiana State Assessment), Primary Disability Code and Attendance in third grade.

Sample

This study investigates the academic outcomes (ISTEP+ ELA and Math scores), of a single cohort of special education students in the state of Indiana placed in high, mixed and low inclusion settings. Students are followed from the third grade in 2013 through the eighth grade in 2018. All analyses for the study used data obtained through a data share agreement with the Indiana Department of Education (IDOE) from all students in Indiana with IEP's for the years of the study.

Treatment & Control Groups

- High inclusion: Placement in general education 80% more of the school day for all grades 3-8
- Mixed inclusion: Placement in general education for less than 80% of the school day for at least one year between grades 3 and 8.
- Low inclusion: Never placed in general education for more than 80% or more of their school day for all grades 3-8.

Matching and Outcome Variables

IRead Scores: At the end of a student's third grade year, the state of Indiana administers a standardized reading test, IRead, to assess the student's reading ability. Scores for the IRead are continuous, approximately normally distributed, and range from 300 to 650. Students' third grade IRead scores are used as a matching variable.

Primary Disability: Primary disability is a matching variable in the sub-analysis Matching on Disability Code, and is a variable used to look within disabilities in the Within Unique Disability Codes sub-analysis.

ISTEP+ Scores: All students with disabilities in Indiana who took the state assessment (ISTEP+) were included in the matching process. Scores for the ISTEP+ are continuous and approximately normally distributed, with ranges varying by grade level. ISTEP+ scores in grades 4 through 8 are used as outcome measures. For analyses of ELA and math scores, third grade scores are used as a matching variable.

Attendance: Student third grade attendance records, in days, are used as a matching variable such that students should be paired with students with similar attendance records.

Results

Students with disabilities who spend all of their time in a general education inclusive classroom do significantly better in both reading and math assessment than their peers who are placed in separate special education classrooms.

- ✓ Students with placements classified as "high inclusion" scored better on ELA and Math for all analyses.
- ✓ Of the 40 analyses, 95% of them favored high-inclusion settings for special education students and were statistically significant.
- ✓ Of the 40 analysis, 80% were highly significant.

N: Treatment/Total
 Matching 1:1; Caliper = 0.1
 * Significant at 5%; ** Significant at 1%; *** Significant at 0.1%

High Inclusion vs. Low Inclusion

		Matched on IREAD, corresponding 2013 ISTEP scores, and PD Codes; Treatment = Low Inclusion All PD Codes ATET	Matched on IREAD, corresponding 2013 ISTEP scores, and PD Codes Treatment = High Inclusion All PD Codes ATET
ELA	2014	-20.46 ***	34.65 *
	2015	-11.11 *	29 *
	2016	-12.51 *	53.21 **
	2017	-24.43 ***	45.38 **
	2018	-17.88 *	29.92
	N	72/144	1693/3386
Math	2014	-23.57 **	37.31 *
	2015	-26.24 ***	16.99
	2016	-23.55 ***	32.5 **
	2017	-25.51 ***	46.28 ***
	2018	-31.7 ***	37.94 **
	N	87/174	1745/3490

N: Treatment/Total
 Matching 1:1; Caliper = 0.1
 * Significant at 5%; ** Significant at 1%; *** Significant at 0.1%

High Inclusion vs. Mixed Inclusion

		Matched on IREAD, corresponding 2013 ISTEP scores, and PD Codes; Treatment = Low Inclusion All PD Codes ATET	Matched on IREAD, corresponding 2013 ISTEP scores, and PD Codes Treatment = High Inclusion All PD Codes ATET
ELA	2014	-8.51 ***	6.19 **
	2015	-7.89 ***	7.94 ***
	2016	-9.32 ***	11.57 ***
	2017	-11.3 ***	11.4 ***
	2018	-22.27 ***	20.89 ***
	N	941/1882	1695/3390
Math	2014	-9.27 **	8.55 **
	2015	-6.59 **	7.96 ***
	2016	-8.85 ***	8.34 ***
	2017	-6.42 **	8.96 ***
	2018	-14.48 ***	19.54 ***
	N	1009/2018	1748/3496

Implications

The issue of whether to include or not include students with disabilities in the general education classroom, while seemingly a simple concept, has been debated for over two decades. To date, evidence of whether students with disabilities learn more in one placement over another has at best been inconclusive. However, this study finds a definitive relationship between placement and the predictors of academic success.

Placement for services decisions in early elementary and middle grades prepares students for high school and beyond. Knowing that inclusion results in better student academic outcomes should support and encourage the placement process to focus on the best way to include students with disabilities in general education classrooms. All involved in the decision-making process, including parents and guardians as well as educational professionals, can benefit by having information that helps them understand the costs and benefits of service placement decisions for students. Moreover, definitive research concerning the best placement location for special education services can provide a clearer focus for both pre-service training as well as in-service professional development. It can inform the school improvement process and can better enable the integration of best practices in the design, delivery and evaluation of instruction into the placement process.

The value of this research is comprehensive in nature in that it is useful for legislation, policy, systems design and practices that define the educational and life experiences for students with disabilities. In doing so, it can play a crucial role in resolving the tensions regarding expectations, resources, inconsistent decisions and best practices. Most importantly, providing evidence regarding the relationships between placement and outcomes allows for data-based research to guide and support decision-making to include students with disabilities in general education classrooms.

References

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