CLASS PLACEMENT AND ACADEMIC AND BEHAVIORAL VARIABLES AS PREDICTORS OF GRADUATION FOR STUDENTS WITH DISABILITIES

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ABSTRACT

This study investigated the impact of a range of variables as predictors of graduation potential for students with Specific Learning Disabilities (SLD) or Emotional Behavioral Disorders (EBD) within a large urban school district. These factors included the following characteristics and elements: (a) primary exceptionality, (b) gender, (c) race/ethnicity, (d) grade, (e) current enrollment, (f) academic history, (g) behavioral history, (h) Florida Comprehensive Assessment Test (FCAT) performance, and (i) educational setting. Results indicated that a successful academic history was the only significant predictor of graduation potential when statistically controlling for all other variables. While at marginal significance, results also yielded that students with SLD or EBD in inclusive settings experienced better academic results and behavioral outcomes than those in self-contained settings.

Keywords: Inclusion, Students with disabilities, Dropout, Urban settings

Introduction

The failure of students with specific learning disabilities (SLD) or emotional behavioral disturbances (EBD) to graduate prevails nationally (Chapman, Laird, Ifill, & KewalRamani, 2011). Among all disability categories, students with EBD or SLD represent the greatest number of students who drop out (National Center for Statistics, 2009) with 51.4% of all students with EBD and 34.1% of students with SLD dropping out (Bost, 2006). Although overall dropout rates have decreased across the nation since the 1990s, dropout rates have remained consistent for students from minority backgrounds and students with disabilities in urban settings. Thus, the need exists for further investigation of the dropout phenomenon amongst these student populations.

Studies reveal that regardless of disability, students who drop out disengage from the school's culture (e.g., Bost & Riccomini, 2006; Dunn, Chambers, & Rabren, 2004). This process typically involves extreme truancy, and

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consequently, poor academic success. In examining school disengagement from a special education angle, the ramifications are extremely detrimental. Students in special education must often deal with the implications of having a disability within the constructs of a system that has historically separated them from the general population in order to provide services (Hehir, 2005). Increasingly more troubling is the fact that to qualify for services, the students must have a pervasive history of academic failure (Harry & Klingner, 2006). These systemic practices can potentially lead to students feeling isolated and inadequate, which promotes disengagement from school and eventual dropout (Bost, 2006). Arguably, inclusive settings can improve students' opportunities to interact with their non-disabled peers, become members of the general school culture (Cramer, Liston, Nevin, & Thousand, 2010), and increase academic performance as well as pro-social behaviors (Rea, McLaughlin, & Walther-Thomas, 2002).

Conceptual Framework

The gradual disengagement of students with disabilities from school occurs due to a myriad of social, academic, and behavioral factors (Bear, Kortering & Braziel, 2006; Suh & Suh, 2007) that are exacerbated by narrow notions of what a disability status constitutes. These factors often result in the students' removal from the general culture of the school and the failure to view and treat them as contributing members of the school's milieu (Hehir, 2005). Recent studies on school attrition suggest that school-related factors significantly contribute to students' school completion or attrition, and that schools and teachers should be held accountable (Bost & Riccomini, 2006; Dunn et al., 2004). Based on the conceptual framework suggested by Bost (2006), the school as an institution is responsible for creating a climate that promotes pro-social behaviors and academic success while providing highly qualified teachers and effective transition service—all of which have proven to result in improved successful educational outcomes. To foster such a climate, teachers need to ensure that students have instructional and behavioral supports, as well as access to relevant content and quality instruction.

Studies of school attrition have identified school-related variables such as academic history, behavioral history, and availability of inclusive support systems as potential risk factors for dropout (Rea et al., 2002; Scanlon & Mellard, 2002; Suh & Suh, 2007). Kortering, Haring, and Klockars (1992) found that the school-related variables contributing to dropout consisted of school-initiated interruptions (suspensions) and school transfers, while Cobb, Sample, Alwell, and Johns (2006) found that aggressive and/or anti-social behavior in middle and high school is an indicator that a student is a potential dropout, and that students with EBD or SLD tended to feel out of place in school due to lack of social skills and the ability to socially navigate the educational system. Yet, to date no researchers have investigated the effects of inclusive settings on dropout trends for students with EBD or SLD. Given that students with disabilities in urban settings experience the highest dropout rates of all students, combined with the current trend toward

inclusion in public school settings, it is crucial to explore the dropout phenomenon in these settings. Accordingly, the purpose of this study was to investigate the school-related variables that predict the graduation potential of students with SLD or EBD in urban settings, as well as the impact of inclusive settings on their graduation potential grounded in the experiences of students in special education. To do so we considered the following research questions:

- Do the variables (a) primary exceptionality, (b) gender, (c) race/ethnicity, (d) grade, (e) current enrollment, (f) academic history, (g) behavioral history, (h) Florida Comprehensive Achievement Test (FCAT) performance, and (i) educational setting represent predictive factors with regard to the graduation potential of students with SLD or EBD?

- Do the variables (a) educational setting, (b) primary exceptionality, (c) academic history, and (d) behavioral history show first order interactions?

Method

This study utilized a logistic regression to analyze the impact of the aforementioned variables (a to i) as likely predictors of graduation potential impacting students with SLD or EBD. To support the reliability of the instrument employed, in this case logistic regression, the test-retest format was followed, where three trials of all the regressions and interactions were conducted in order to assess if the results were consistent. To facilitate internal consistency, linear regressions were implemented to answer the research questions.

Participants

This study took place in a large, diverse, urban school district that provides services for a total of 349,945 students in 45 high schools across four geographical regions. The participants were 573 Black and Hispanic 11^{th} and 12^{th} graders with SLD or EBD (as primary disability), ranging from 15 to 18 years of age who had met the graduation requirements (24 credits) and expected to graduate with a standard diploma, and who were receiving instruction in inclusive or self-contained settings. As per federal mandate (Individuals with Disabilities Act, 2008), student placement is determined by a myriad of factors including academic and behavioral history, specific educational needs and related services, with an emphasis on placing students in the least restrictive environment where they can be academically and behaviorally successful. However, research shows that students with EBD are overwhelmingly placed in more restrictive settings than their peers with other disabilities (Hehir, 2005).

While restricting variability, these delimitations were set to ensure that the students being studied were examples of those who were likely to graduate despite risk factors, potentially providing insight into what "keeps" students of

color with disabilities in school. Although this study did not intend to exclusively include Black and Hispanic students, the entire sample consisted of these students due to the demographics of the schools investigated. One high school from each region was selected for participation with the following conditions: (a) state school grade of C or lower (based on performance on high-stakes tests), (b) students with SLD or EBD represent 20% or more of the dropout population, and (c) students with SLD or EBD make up more than 50% of the students with disabilities at that school. That is, if 15% of the total school population was students with disabilities, of those students, >50% would have either SLD or EBD, which is common in this district. Schools with a grade of C or lower were chosen since these generally report the highest numbers of dropouts (U.S. Department of Education, 2002), ensuring that a substantial population of students who were at risk for dropping out would be included in the sample, though potentially limiting heterogeneity of the sample.

Procedures

The data categories were extracted from district archival school graduation reports, published yearly, depicting graduation rates for all schools using the event method which records the number of dropouts that occur in a particular year and provides related percentages. The independent variables were regressed onto the dependent variables using the $Y= b+ b^1 x$ equation. The standardized regression weight implemented to interpret results in linear regression or Beta weight was interpreted as a log odd estimate and compared to the odds ratio estimate, which is generally thought to be a more efficient way to show the relationship between the independent and dependent variables (Meyers, Gamst, & Guarino, 2005). To interpret the overall validity of the model proposed, the Cox and Snell *R* and the Nagelkerke R^2 were considered. For the purposes of this study the Nagelkerke R^2 was used due to the fact it can achieve a maximum value of 1 which is generally preferred (Meyers et al., 2005).

Definitions and Interactions of Variables

The dependent variable consisted of enrollment (in-school or dropped out). For this study, the variable primary exceptionality was defined as the student's disability category (SLD or EBD). Gender was coded as male or female, and race/ethnicity included Black or Hispanic. Grade level was 11 or 12. Current enrollment was defined as currently enrolled or dropped-out. Academic history was defined as a dichotomous variable and measured by the above or below 60% average (the cutoff for school failure in the district studied, based upon school grades). Behavioral history was coded implementing levels of disciplinary infractions measured on a 0-3 point scale, where 0 represented no suspensions, 1 represented in-school suspensions, 2 represented out-of-school- suspensions, and 3 represented expulsion from school, thus creating four dichotomous variables (i.e., 0, 1, 2, and 3). If students had multiple levels of offenses, the number associated with the highest level of offense was input. Performance on the FCAT,

the statewide, standardized test, was coded as pass or fail. Academic placement was defined as inclusion or self-contained. See Table 1 for the independent variables with corresponding codes.

Table 1

Independent Variables

Primary Exc	Gender	Race/ Ethnicity	Grade	Educational Setting	Academic History	FCAT	Behavioral History (Suspension Levels)
LD (0)	Female (0)	Hispanic (0)	11 (0)	Self-Contained (0)	Fail (0)	Fail (0)	None (0)
EBD (1)	Male (1)	Black (1)	12 (1)	Inclusion (1)	Pass (1)	Pass (1)	Indoor (1) Outdoor (2) Expulsion (3)

Note. Exc=Exceptionality

This study investigated the potential existence of first-order interactions between (a) educational setting and academic history, (b) educational setting and behavioral history, (c) primary exceptionality and academic history, and (d) primary exceptionality and behavioral history in the regression. First order interactions are the combined effects of variables on the dependent measure. If an interaction effect is found, the impact of one variable depends on the level of the other variable. Problematic academic and behavioral histories have been found to be precursors to dropout (Bost, 2006). In-door suspensions (when a student is temporarily removed from class but remains on school property) and out-door suspensions (when a student is temporarily removed from school, and may not be on school grounds until the suspension is released) as well as aggressive and anti-social behaviors are established dropout markers (Cobb et al., 2006; Suh & Suh, 2007). Within the context of special education, it is important to determine their interaction with academic setting and exceptionality. Both variables were multiplied together to create the interaction variable. To provide a clearer picture of the relationship between these variables, correlations were also conducted. The variables were coded as follows:

1. Educational Setting*Academic History
2. Educational Setting*Behavioral History
3. Primary exceptionality*Academic History
4. Primary exceptionality*Behavioral History

Results

Results indicated that academic history is the only significant predictor of graduation among students with SLD or EBD when all the other school-related variables are controlled statistically (see Table 2). The student's academic history (passing or failing grades) was found to be the strongest predictor of graduation when including all the other variables. Only the variable race/ethnicity approached significance indicating that Blacks were more likely to graduate than Hispanics when holding all other variables constant.

Table 2

Statistical Significance of Independent Variables on Graduation Rates

Variables	Standard Error	Standardized Beta	t	Significance
Exceptionality	.013	-.024	-1.183	.237
*Race/Ethnicity	.015	.036	1.925	.055
Gender	.01	.003	.185	.853
Grade	.013	-.014	-.734	.463
*Academic History	.019	.912	48.786	<.009
FCAT Reading	.012	-.003	-.177	.859
FCAT Math	.013	.003	.138	.891
Educational Setting	.015	.003	.169	.866
Suspension	.008	-.021	-1.097	.237

Results also yielded that all the statistically controlled variables account for a significant amount of variance in predicting graduation (see Table 3). The R^2 was .836, and the adjusted *R* was .833. In addition, *p* was less than or equal to .0009. The only significant predictor of graduation when statistically controlling all the other variables was having a satisfactory academic history (see Table 4).

Table 3

Model Summary of Significance of Variables

R	*R* Square	Adjusted *R* Square	*F*	Significance
.914	.836	.833	318.498	.000

Note. The model summary shows the significance of all the statistically controlled variables.

Table 4

Log Regression Model Variables in Equation Predicting Graduation Potential

Variable(s)	*B*	S.E	Wald	*Df*	Significance	Exp *(B)*
Academic History	7.096	.647	120.267	1	.000	1207.200

A significant association was found between: (a) educational setting and academic history, (b) educational setting and behavioral history, (c) primary exceptionality and academic history, and (d) primary exceptionality and behavioral history (see Table 5). All of the independent variables except primary exceptionality are associated with the dependent variable (enrollment).

Table 5

Correlation of Variables

Enrollment		Exception-ality	Suspension	Academic History	Educ. Setting	Enrollment
Exception-ality	Correlation Coefficient	1.00	.025	.064	.248**	.041
	Sig. (2-tailed)		.554	.128	.000	.324
Suspension	Correlation Coefficient	.025	1.000	-.307**	-.289**	-2.88**
	Sig. (2-tailed)	.554		.000	.000	.000
Academic History	Correlation Coefficient	.064	-.307**	1.000	-2.67**	.913**
	Sig. (2-tailed)	.128	.000		.000	.000
Educational Setting	Correlation Coefficient	.248**	-.289**	.267**	1.000	.240**
	Sig. (2-tailed)	.000	.000	.000		.000
Enrollment	Correlation Coefficient	.041	-.288**	.913**	.240**	.1000
	Sig. (2-tailed)	.324	.000	.000	.000	

Note. Correlation is significant at the 0.01 level, N=573
[a]Enrollment is the dependent variable.

The results yielded a significant association between being in inclusion classes and having a successful academic history, $r = .267$, $p < .001$. Specifically, 93% of the students in the sample educated in inclusive settings obtained passing grades, while in comparison 72% of students in the sample from self-contained settings obtained passing grades. The results also yielded a significant association between being in inclusion classes and having a successful behavioral history, $r = -.289$, $p<001$. Specifically, 79% of the students from self-contained settings were suspended, in comparison to 22% of the students from inclusive settings.

An ordinal logistic regression was conducted to determine the effect of the dependent variable (i.e., enrollment) on the independent variables: (a) academic history, (b) behavioral history (i.e., suspensions), and (c) educational setting. This was done in two steps (i.e., model 1 and model 2). As shown in Table 6, the overall model without the interactions, model 1, was significant. While model 2 (see Table 7) was also significant, there was not a significant change between model 1 and model 2, χ^2 (3) = 3.66, *n.s*. The Nagelkerke R^2 was used to interpret the overall variance of the model; accordingly, the R^2 was .84. This indicates that 84% of the variance of the dependent variable is explained by the independent variables.

Table 6

Model Summary of Change in Statistics for Correlation Variables

Models	X^2	*Df*	Significance	Nagelkerke R^2
Model 1	314.28	3	<.009	.83
Model 2	317.94	6	<.009	.84

Table 7

Variables in Model 2

Variables	*B*	*S.E*	Wald	*df*	*Significance*	*Exp(B)*
Academic History	5.694	1.040	29.959	1	.000	297.097
Suspensions	-.197	.407	.234	1	.629	.821
Educational Setting	-1.624	1.231	1.739	1	.187	.197
Educational Setting X Academic History	2.670	1.524	3.070	1	.080	14.446
Academic History X Suspensions	-.146	.648	.051	1	.822	.864
Educational Setting X Suspensions	.123	.769	.025	1	.873	1.131
Constant	-1.774	.654	7.361	1	.007	.170

Note. The (X) indicates the variables were multiplied.

In model 2, despite the fact that there were associations between the independent variables illustrated and the dependent variable, when the other variables were controlled, the only significant variable was academic history. This indicates that the variance between academic history and enrollment overlaps with

the variance between behavioral history and enrollment (i.e., it explains overlapping variance). Similarly, the relationship between educational setting and academic history overlaps with the relationship between educational setting and enrollment. While this was not significant, the interaction between educational setting and academic history did approach significance. Therefore, the effect of academic history on enrollment might depend on the educational setting. Specifically, students in inclusive settings are more likely to have a successful academic history when compared to students in self-contained settings, which was the only significant predictor of graduation potential when statistically controlling the other specified variables.

Discussion

Dropout affects students with disabilities at alarming rates (NCES, 2009), and intensifies in EBD populations (Cobb et al., 2006). The results yielded by this study not only support the latter finding, but suggest that even within the current inclusive climate, students with EBD are still not making adequate progress towards graduation potential. Based on the sample investigated and the parameters embedded by the researchers, the only significant predictor of graduation across both exceptionalities was a successful academic history or achieving passing grades. Approaching significance was race/ethnicity. Based on the sample investigated, Black students with SLD or EBD were significantly more likely to graduate than Hispanic students under the same disability categories. This particular finding coincides with current national dropout trends that indicate Hispanics are at greatest risk for dropout (NCES, 2012).

This study also sought to investigate the existence of first order interactions between the students' educational setting and their academic and behavioral success, as well as between the students' exceptionality and their academic and behavioral success. In addressing the first set of interactions, this study found that there is a significant interaction between educational setting and academic achievement. Specifically, students in inclusive settings were more likely to pass their classes or achieve academically than students in self-contained settings. As evidence, only 6% of the students in the sample educated in self-contained settings had a successful academic history. These findings support Rea et al.'s (2002) conclusions, which indicated that students with disabilities in inclusive settings performed better academically, as well as this study's contention that inclusion can be implemented as a potential dropout prevention variable for students with disabilities. Moreover, given previously stated findings which indicated that low academic achievement increases dropout rates (e.g., Bear et al., 2006; Suh & Suh, 2007), extensive consideration must be given to the idea that students in inclusion classes experience significantly better academic results than their self-contained counterparts.

Educational Settings and Referrals

In line with studies cited throughout (e.g., Rea et al., 2002; Cobb et al., 2006), which indicated that inclusive settings promoted pro-social behaviors, this

study found that inclusive settings have a significant interaction with behavioral history, or a student's behavioral record. It is important to note that students with EBD are often placed in self-contained settings due to negative connotations of the EBD label that result in teachers students holding lower expectations of these students (Hehir, 2005). Specifically, educational setting plays a significant role in increasing or decreasing suspensions or related disciplinary actions regardless of exceptionality. In analyzing the second set of interactions, exceptionality and academic and behavioral success, there was a first order interaction between exceptionality and academic success. Specifically, based on the sample analyzed, students with EBD were more likely to drop out than all other students.

Since one of the main goals of this study was to investigate the effect of inclusive settings on graduation potential, it is important to clarify that it was not found to be significant. Possible explanations for lack of significance revolve around the way student placement is determined. Although the Individuals with Disabilities Education Act (2008) requires that students with disabilities be placed in the least restrictive environment (LRE) and that placements be revisited each year, students are often unnecessarily segregated or left in general education placements without supports (Soukup, Wehmeyer, Bashinski, & Bovaird, 2007). When educational policy is being correctly implemented, if students are not progressing in their current placements, then placements change accordingly. It is important to note that this may have affected related outcomes.

Implications/Conclusions

This study was found to have several potential limitations. Like most other districts in the nation, the district studied uses the event cohort method to measure dropout rates, which is the least accurate of all and tends to provide lower dropout figures (Kemp, 2006). Consequently, the data analyzed potentially underestimated the number of students with SLD or EBD that dropped out. The fact that longitudinal data regarding the psychological, academic, and behavioral history of the sample were not investigated can potentially underscore significant existing differences between the students. It is recommended that a study that examines these longitudinal properties be conducted to measure the overall impact of inclusive settings. To further explore how the general culture of the school affects dropout trends, and given the fact the sample selected in this study was from schools graded "C" or lower, a similar study can be conducted in higher or lower performing schools. Specifically, the significance of the school's grade (or ranking in meeting Adequate Yearly Progress) as it relates to dropout trends in special education should be investigated. Not including higher performing schools or other disability groups does limit the heterogeneity of this sample, leading to possible need for further study of other schools and students.

In considering the educational ramifications of the findings of this study, being able to achieve passing grades was the only significant predictor of graduation potential, therefore significant measures must be taken when addressing the academic needs of students with disabilities in urban settings. To

achieve this, general education teachers in inclusive urban settings must become familiar with accommodations and adaptations and must also be given adequate support from administrators and special education experts (Hehir, 2005). The way in which EBD students are being educated within the context of current inclusive mandates and related practices must be urgently addressed. The results yielded that students with both SLD and EBD received better academic grades in inclusive settings. Based on this, it is suggested that students be exposed to inclusive settings more frequently or for longer periods of time. This is particularly important in urban schools where students with disabilities tend to be placed in more restrictive settings (Skiba, Poloni-Staudinger, Gallini, Simmons & Feggins-Azziz, 2006). Structured behavioral programs, including a generalization phase where students are taught how to apply their learned behavioral skills across all settings, should be followed in inclusive settings, with the support of the special education teacher (Cobb et al., 2006). Dropout trends have been moderately reduced in general education since the early 1990s (NCES, 2012); it is both a moral and a professional obligation to ensure that the same occurs in special education.

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