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On the Wrong Track: How Tracking is Associated with Dropping Out of High School

Jacob Werblow
Central Connecticut State University

Angela Urick
Minnesota State University, Mankato

Luke Duesbery
San Diego State University

Academic tracking has been shown to limit the quality of student instructional opportunities, decrease students' perceptions of their abilities, and negatively influence student achievement. These factors associated with academic tracking also may influence students in lower tracks to learn less and ultimately to drop out of high school. Few studies, however, have investigated academic tracking as a collective school-level phenomenon and an individual student-level predictor of school dropout. To date, no study has examined this issue using a nationally representative sample. In this study, multilevel analytic models of the first two waves of the Educational Longitudinal Study (ELS) of 2002 indicate that, while controlling for student- and school-level differences, students in the lower academic tracks are roughly 60% more likely to drop out of high school. Academic tracking appears to disadvantage students who are Latinos, have Individualized Education Plans (IEPs), or have lower socioeconomic backgrounds. Schools with a more positive academic climate, high morale, and a focus on learning, however, show a slight decrease in the likelihood of students dropping out.

Tracking has been one of the most controversial topics in American schools as it has been found to reinforce educational inequities within schools, yet it remains a school practice deeply engrained in the American schooling system (Blanchett, 2006; Dauber, Alexander, & Entwisle, 1996; Hanushek & Wößmann, 2006; Mickelson & Everett, 2008; Ruben & Noguera, 2004; Schofield, 2010; Solórazno & Ornelas, 2002; Welner & Burris, 2006). Tracking, or within-school ability grouping, refers to any school organization structure that increases the homogeneity of instructional groups by stratifying students by curriculum standards, educational career goals, or ability (Akos, Lambie, Milsom, & Gilbert, 2007). For example, tracking in secondary schools commonly takes the form of placing higher performing students into college preparation or

Address correspondence to Jacob Werblow, Central Connecticut State University, Teacher Education, 1615 Stanley Street, New Britain, CT 06053. E-mail: werblowjac@ccsu.edu

advanced placement academic classes, while placing lower performing students in general education, remedial, or vocational courses. At the elementary level, tracking occurs primarily within classrooms (reading or math groups assigned by teacher). In either case, there is a general consensus in the literature that tracking students into homogenous groups based on academic performance substantially disadvantages those placed in the lower track as discussed below. Limited evidence has demonstrated that those in higher tracks perform better than they would in detracked, or mixed-ability, classes (Ansalone, 2001; Hallian, 2003; Oakes, 2005). Unfortunately, tracking has received little attention in the national discourse on school reform, even though this practice continues to disadvantage children in schools across the country.

REVIEW OF THE LITERATURE

The Negative Effects of Tracking

For students, being placed in a lower academic track is associated with a multitude of negative individual outcomes. Once students are placed in a lower academic track in the early grades, they often remain there through high school, where the differences between tracks become more pronounced (Alexander, Cook, & McDill, 1978; Archbald & Farley-Ripple, 2012; Hallian, 2003; Kelly, 2009; Mulkey, Catsambis, Steelman, & Hanes-Ramos, 2009). In secondary schools, students often assigned to lower track courses find themselves "locked out" of higher-level courses in the upper grades due to school policies that require prerequisite course completion into higher-tracked courses (Kelly & Price, 2011). Once placed in a lower track, students are likely to have more limited instructional opportunities (Ansalone, 2001; Hallian, 2003), lower quality curriculum (Ansalone, 2001; Loveless, 1999; Oakes, 2005), and less rigorous expectations from possibly less experienced teachers with fewer resources throughout their schooling career (Alexander, Cook, & McDill, 1978; Blanchett, 2006), resulting in decreased self-concept about their own ability for academic success (Bryne, 1988; Chiu et al., 2008), and increased exposure to anti-school peer groups (Gamoran & Berends, 1987).

Tracking negatively affects students by race and class. Latinos/as, African Americans, and students from lower socioeconomic backgrounds are often less likely to enroll in Advanced Placement (AP) or higher-level courses (Blanchett, 2006; Dauber, Alexander, & Entwisle, 1996; Hanushek & Wößmann, 2006; Mickelson & Everett, 2008; Solórzano & Ornelas, 2002). International studies draw similar conclusions—countries that track their students into ability groups have greater educational inequity than countries that do not track (Hanushek & Wößmann, 2006; Schofield, 2010). Despite the evidence that tracking promotes educational inequality, ability grouping has proven to be a difficult practice to eliminate in the United States (Alpert & Bechar, 2008; Oakes, 1987).

Tracking and Student Dropout

Exploring the issue of tracking in high schools is especially important since being placed in a lower academic track is associated with dropping out of school (Alexander, Entwisle, & Horsey, 1997; Brunello & Checchi, 2007; Plank, DeLuca, & Estacion, 2008) and student dropout has become a national epidemic. Nearly one third of all public high school students in the U.S.—and nearly one half of all African American, Hispanic, and Native American students fail to graduate in four years (Bridgeland, Dilulio, & Morison, 2006). According to Stillwell and Sable's (2013) report for the U.S. Department of Education, nearly one-third of all high school students fail to graduate in four years

Students placed in lower academic tracks are likely to have higher dropout rates, in part, because lower track placement is associated with predictors of school climate (Lee & Smith, 2001; Pittman & Haughwout, 1987; Werblow & Duesbery, 2009) that correlate with dropout. Some of these predictors include students' perception that instruction is uninteresting and of low quality, a lack of classroom cohesion, and students feeling alienated from the rest of their school (Archambault, Janosz, Fallu, & Pagani, 2009; Bridgeland, Dilulio, & Morison, 2006; Fortin, Marcotte, Potvin, Royer, & Joly, 2006; Lessard, Butler-Kisber, Fortin, Marcotte, Potvin, & Royer, 2008; Osterman, 2000; Pittman & Haughwout, 1987). It is clear that tracking is associated with multiple negative student outcomes, yet tracking continues to be a widespread practice.

Why Tracking Continues

Tracking policies have, in part, continued as a widespread practice in the United States because they are largely reflective of the beliefs and attitudes of many educators and parents (Ansalone, 2009; LeTendre, Hofer, & Shimizu, 2003; Rubin, 2006). A common rationale in support of tracking is that performance-based assignment of students to homogeneous classes allows teachers to better meet student needs (Ansalone & Biafora, 2004; Nomi, 2010; Slavin, 1987a) and that the achievement of higher tracked students would decrease with detracking (Loveless, 2009). Early studies on ability grouping by Slavin (1987b, 1990) found that tracking has no effect (either positive or negative) on student achievement in English, reading, or mathematics. Nevertheless, parents of higher achieving students have feared the loss of higher-level courses and threatened to flee schools in which these courses are not offered (Ruben & Noguera, 2004; Loveless, 1999); and some evidence suggests that more "detracked" schools are urban, low socioeconomic schools that subsequently do not offer as much access to advanced courses as suburban schools.

Tracking and School Academic Climate

The literature shows that tracking is ineffective, but forms of detracking may not promote educational equity either. To date, most of the tracking and detracking literature has focused on student-level differences, whether or not a student's enrollment in a course or a sequence of courses influences student outcomes. Less research has explored tracking as a school-level phenomenon of beliefs about and attitudes toward students. "Tracking seems to be the program of choice primarily because it is embedded in the broader reality and culture of the school rather than because of its overall effectiveness" (Ansalone, 2009, p. 150).

We argue that perceptions of the academic press and the morale among teachers and students, or school academic climate, are a school-level predictor that moderates the extent to which academic tracking or detracking influences student performance in school. Since the nature of tracking as an institutional practice varies between schools (LeTendre, Hofer, & Shimizu, 2003; Riehl, Pallas, & Natriello, 1999), a measure of school academic climate may help us better understand the consequences of tracking and detracking. Because the differences in tracking policies are difficult to identify and measure across schools, we propose school academic climate as proxy for the attitudes and beliefs that underlie these systems. School climate may be a key to understanding why both tracking and detracking seem to have disadvantages for students.

Previous research has rarely measured the extent to which school climate, such as the shared beliefs of teachers and students, could potentially reduce the effects of tracking on dropping out, but a school's academic climate—high morale, focus on learning, and high academic expectations—should not be ignored as it often separates high performing schools from low performing ones (MacNeil, Prater, & Busch, 2009), thereby mediating the effects of socioeconomic status on student achievement (Heck, 2006; Hoy, Tarter, & Hoy, 2006; McKown & Weinstein, 2008).

Two main constructs are associated with the positive influence of the school academic climate on student outcomes: academic press and morale (Urick & Bowers, 2011, in press). First, academic press represents the level of expectations and rigor for students. It is often described as the extent to which teachers set high, achievable goals for students; students and teachers perceive that students work hard; and students are respected for their accomplishments (Goddard, Sweetland, & Hoy, 2000; Hoy, Sweetland, & Smith, 2002; Hoy, Tarter, & Bliss, 1990; Hoy, Tarter, & Hoy, 2006). Academic press includes an overall priority placed on learning in addition to rigor of the program, such as the expectation of homework (Phillips, 1997; Shouse, 1996). Second, a high morale among teachers and between teachers and students is viewed as a healthy environment that enhances a learning-driven school (Hoy & Hannum, 1997; Hoy, Tarter, & Bliss, 1990). These positive relationships between students and teachers, when perceived as friendly, helpful, and inclusive, or having high morale, have been found to promote student outcomes (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Danielsen, Wiium, Wilhelmsen, & Wold, 2010; Hoy & Hannum, 1997; Stewart, 2007). In sum, academic climate is described as a school-level measure of the degree to which learning and academic achievement are valued and to which teachers and students build morale to support each other in this priority of high achievement (MacNeil, Prater, & Busch., 2009; Urick & Bowers, 2011, in press).

The same attributes describing the academic climate can be found in the descriptions of successful detracking reforms and the reverse attributes can be found in studies showing the negative effects of tracking (Alexander, Cook, & McDill, 1978; Ansalone, 2009; LeTendre, Hofer, & Shimizu, 2003; Oakes, 1987). Rubin (2006) explains: "The most effective strategies for detracking encourage and incorporate student and teacher redefinitions of the underlying beliefs about ability" (p. 8). Further, a strong, positive academic climate supports this shift in beliefs about students. This connection is made evident through theoretical frameworks on the effects of tracking that include support of student self-concept and high expectations (Oakes, 1987). These related attitudinal concepts, however, have rarely been tested using nationally representative data of students in U.S. schools. Instead, prior research has attempted to represent various institution-specific structures of tracks and detracks (LeTendre, Hofer, & Shimizu, 2003; Riehl, Pallas, & Natriello, 1999) or have ignored school-level variables altogether.

Although tracking appeared as an important variable of study nearly half a century ago, researchers have often drawn conclusions without three conceptual and methodological considerations. First, a long history of research has established the association between ability grouping or tracking and student achievement, but fewer studies have investigated the association between tracking and dropping out of high school, which is arguably the most important student outcome. Second, school-level factors (i.e., academic tracking, class size, school size) have often been studied in isolation, which is problematic because they ignore the differences between schools (e.g., percentage of students living in poverty, percentage of students who are English Language

Learners). Third, much of the research has overlooked the beliefs and attitudes that underlie tracking or detracking. Academic climate is potentially a school-level measure that demonstrates the extent to which a student's track influences his or her outcomes. To date, no study has used nationally representative data to test the extent to which a high school's academic climate and a student's academic track simultaneously influence whether or not a student drops out of high school while accounting for student background.

PURPOSE

In this study, we seek to extend the current literature on the relationship among a school's academic climate, a student's academic track, and the probability of dropping out of high school. First, we analyze data from a nationally representative sample of high school students and schools from the Education Longitudinal Study of 2002 (ELS:2002), thereby diminishing the threat of local variation leading to non-generalizable inferences. Second, our choice of analytic method, Hierarchical Generalized Linear Models (HGLM), accounts for the complex nested structure of individual student-level data within higher level school data, that is, students nested within schools. HGLM is particularly well suited to complex multilevel questions of dichotomous outcomes (Raudenbush & Bryk, 2002). Thus, while statistically controlling for other school- and student-level differences, including socioeconomic status, urbanicity, race/ethnicity, we ask the following questions:

(1) Are non-dominant racial/ethnic groups disproportionately placed in lower tracks?
(2) To what extent does tracking influence the likelihood of being a high school dropout?
(3) To what extent does a positive school academic climate help to decrease a student's probability of being a high school dropout?

DATA AND METHOD

Sample

To answer our research questions we examined data from 16,081 students from the Education Longitudinal Study of 2002's (ELS:2002) tenth grade cohort of 752 schools. The ELS:2002 is a nationally representative data set of U.S. high school students during their sophomore (2002) to senior years (2004).

The majority of variables included in this study are ELS:2002 variables that were recoded into dichotomous variables and used as statistical controls to isolate the effects of tracking. These controls include student background, demographics, and school characteristics. (For more information about the variables included in the study, please contact the authors.)

Student-Level Variables

We captured student demographics with several variables: Student-level controls included ethnicity, gender, and parent's socioeconomic status (SES). These measures were developed from

ELS:2002 first year student and parent questionnaires. Students were asked to identify their ethnicity. The ELS:2002 ethnicity variable was categorized as a series of dummy coded variables: Black/African American (1 = yes, 0 = no), Hispanic or Latino/Latina (1 = yes, 0 = no), and Other (1 = yes, 0 = no). White served as the reference category group. Sex was coded as female = 1, male = 0. SES was measured by a composite constructed by the National Center for Educational Statistics (NCES, 2005) that included five equally weighted standardized scores (father's/guardian's education, mother's/guardian's education, family income, father's/guardian's occupation, and mother's/guardian's occupation). Students were also coded based on whether they had an individualized education plan (IEP; yes = 1, no = 0).

Math Gain

The math gain variable was computed by subtracting the base year math score from the follow-up year math score. This procedure for constructing gain scores is common (e.g., Lee & Smith, 1996, 1997). The ELS:2002 test scores were vertically scaled using item response theory (IRT) to determine students' estimated ability from 85-questions in a mathematics item pool of the combined tenth and twelfth grade test questions.

Student Dropout

Our student dropout variable was based on the dropout rate from sophomore (2002) to senior year (2004). Dropout was coded as 0 = not dropout/alternative completer; 1 = dropout as of spring term 2004; 2 = alternative completer: left school and earned GED before 3/15/2004; 3 = student was in school during time of the follow-up survey but dropped out during one of the three status enrollment updates afterwards. The dropout variable used in the current study was created by combining codes 1 and 3, and subsequent recoding into two categories: 1 = dropout and 0 = not dropout.

Academic Track

During the base year of ELS:2002, students self-reported their program of study. The variable high school program was coded as 1 = general; 2 = college preparatory (academic), 3 = vocational (including technical-business). In the current study, this variable was recoded into two categories: 1 = college track (college preparatory), and 0 = non-academic track ("general" and "vocational" combined).

School-Level Variables

A number of school-level control variables were used from the ELS:2002 base year school administrator questionnaire: percent of tenth graders receiving free or reduced-fee lunch, urbanicity (urban, suburban, or rural as defined by the Common Core of Data), school size, and academic climate, which was constructed using exploratory factor analysis (EFA) of several ELS:2002 variables. The percentage of tenth graders receiving free or reduced-fee lunch and school size were both recoded into continuous variables using midpoints of the questionnaire categories.

Academic Climate

The dimension of the underlying beliefs about students in the school represented in the ELS:2002 school-level questionnaire was a composite of academic climate. This composite was created through Exploratory Factor Analysis. Five ELS:2002 base year administrator's questionnaire items related to academic climate were analyzed: Student morale is high; teachers press students to achieve; teacher morale is high; learning is high priority for students; and students are expected to do homework. All questions were asked on a five-point rating scale (1 = not accurate at all, 3 = somewhat accurate, 5 = very accurate). At the school level, the five items measuring school morale/academic press displayed a moderately high coefficient ($\alpha = .89$).

Missing Data

Attrition is a common threat to the validity of the interpretations of large-scale, longitudinal studies. Fortunately, several steps were taken to reduce the sampling bias often associated with missing data in the ELS survey. The mean relative difference between NCES imputed and non-imputed data was small, ranging from 0.03% to 0.01%. For more information see Table C-5 in the ELS:2002 base year and first follow-up year manual (NCES, 2005). To further reduce sample bias for this study, multiple imputation in SPSS 19 (Graham, Cumsille, & Elvira, 2003; Strayhorn, 2009) was used for any variable selected with missing data.

Analytic Approach

Hierarchical Linear Modeling, or multilevel modeling, was utilized to appropriately estimate the independent effects of school and student-level variables on student outcomes (Hox, 2002; Raudenbush & Bryk, 2002). This modeling technique accounts for the nested nature of the data: students within their schools (Hox, 2002; Raudenbush & Bryk, 2002). Prior to the use of these multilevel models, student-level data were either aggregated at the school level or school-level data were disaggregated to the student level, which could lead to inaccurate results (Hox, 2002). The multilevel technique used in this study, Hierarchical Generalized Linear Modeling (HGLM), is a statistical method used when the model outcome is dichotomous. We analyzed the selected variables using HGLM to estimate the likelihood that a student will drop out for each student-level and school-level predictor (see Raudenbush & Bryk, 2002, for nomenclature).

The data were analyzed in HLM 7.0 software. Variables were entered into this model in a stepwise process. First, the outcome, student dropout, was added in the baseline model to determine if HGLM was an appropriate technique. Second, the student-level predictors were added to the level-1 model, including academic track, to determine the amount of estimated variance that occurs for the outcome within schools. Third, school-level predictors were added to the level-2 model to determine the amount of estimated variance that occurs for the outcome after controlling for school effects.

TABLE 1
Descriptive Statistics on Upper and Lower Academic Track High School Courses: Categorical Variables

	Non-academic track	College preparatory track
% Female	46.0	54.0**
% White	48.7	51.3**
% Black	51.9	48.1**
% Hispanic	67.4	32.6**
% Other	50.6	49.4*
% IEP	74.1	25.9**
Dropout	76.0	24.0**

*$p < .05$, **$p < .001$

RESULTS

The purpose of this study was to test the extent to which both a student's course track (college or vocational) and a school's academic climate influence the likelihood of a student dropping out of high school. Percentages of each ethnic group in the college track were compared to the vocational track to describe the racial inequities before presenting the results of the HGLM. Descriptive statistics of the student-level categorical variables entered into the multilevel analytic models are displayed in Table 1. White students are the only group to be mostly placed in the college track, 51.3%, $p < .001$. Hispanics are the most underrepresented, as only 32.6% of Latinos are enrolled in the college track, $p < .001$. Students with an IEP are grossly underrepresented as well; 25.9% are enrolled in college-tracked courses. The difference in the likelihood of dropout between these two groups is remarkable. Students in the college track have a dropout rate of 24%, while students in the lower track have a dropout rate of 76%. Results indicate that 49.1% of high school seniors in 2004 were not placed in a higher academic track in high school.

Table 2 displays descriptive statistics of the student-level continuous variables entered into the multilevel analytic models. Students enrolled in the college track tend to be wealthier and tend to learn more. College-preparatory tracked students tend to have nearly one standard deviation higher SES than their lower tracked peers, $p < .001$, and also make 5% more gain in mathematics, $p < .001$ (see Table 2).

A HGLM was used to explore the relationships associated with student dropout. This baseline model had a between-school variance ($\tau^{2)}$ of .62 and a reliability estimate for the level-1 coefficient (λ) of .41. The between-school standard deviation for this model was .79.

TABLE 2
Descriptive Statistics on Lower and Upper Academic Track High School Courses: Continuous Variables

	Non-academic track				College preparatory track			
	n	*M*	*SD*	*SE*	*n*	*M*	*SD*	*SE*
SES	7314	−.02	.71	.01	8767	.09**	.74	.01
Math gain	7314	10.02	6.41	.07	8767	10.58**	6.60	.07

*$p < .05$, **$p < .001$

TABLE 3
Student-Level HGLM for Student Dropout Rate

	Coefficient	*SE*	*T*	Odds ratio	*p*
Intercept (β_0)	−2.80	.07	−42.34	.06	<.001
SES	−.79	.06	−13.94	.45	<.001
Female	−.31	.07	−4.44	.74	<.001
Black	.65	.10	6.45	1.91	<.001
Hispanic	−.55	.09	−5.92	1.74	<.001
Other	.57	.14	3.95	1.77	<.001
IEP	.28	.12	2.44	1.32	<.05
Math gain	.01	.00	−2.21	.99	<.05
College prep. track	−.89	.08	−11.67	.41	<.001

Variance components of student dropout rate

	Variance component	*DF*	x^2	*P*
Intercept (β_0)	.33	750	917.72	< .001

Conditional Model at Level-1

In the level-1 (student-level) model, with the exception of SES and math gain, all other level-1 predictors were entered in their dummy coded metric. In preliminary analyses all level-1 slopes were allowed to vary freely; however, the intercept was the only significant parameter estimate ($p < .001$). Thus all level-1 parameter estimates, except for the intercept, were fixed in the final model. Results of the student-level HGLM are displayed in Table 3.

Compared to the baseline model, the reliability estimate of the intercept ($\lambda = .24$), the between-school variance ($\tau^2 = .34$), and the between-school standard deviation (.58) of the student-level model dropped substantially. The small value of the standard deviation of the variance components' analysis for the intercept indicates there is a small difference in student dropout between schools in this model. Compared to their peers placed in lower tracks, students placed in college courses are less than half as likely to dropout. SES also is a strong predictor of student dropout; high SES students (one *SD* above the mean) are nearly half as unlikely to dropout as their less affluent peers. Differences in math gain were not significantly related to student dropout. Compared to Whites and Asians, females are slightly less likely to dropout, while Blacks, Hispanics, multiethnic students, and students with IEPs are significantly more likely to dropout.

Conditional Model at Level-2

Table 4 presents the conditional model at level-2, how school-level predictors influenced student dropout. Compared to suburban schools, urban ($t = 2.16, p < .05$) and rural ($t = 2.87, p < .001$) schools are associated with slightly higher student dropout. Increases in free and reduced lunch enrollment and high school size also are associated with slightly greater student dropout, $t = 2.81$, $p < .01$ and $t = 2.90$, $p < .01$, respectively. Schools with more positive school climate, higher morale, and more of a focus on learning and academic expectations have less dropout ($t = –3.98, p < .001$).

TABLE 4
School-Level HGLM for Student Dropout Rate

Independent variable	Coefficient	*SE*	*T*	Odds ratio	*p*
School average student dropout					
Intercept (γ_0)	−2.93	.08	−36.44	.05	<.001
Rural	.31	.11	2.87	1.36	<.001
Urban	.20	.09	2.16	1.22	<.05
% Free and reduced-fee lunch	.01	.00	2.81	1.00	<.01
Academic climate	−.18	.04	−3.98	.84	<.001
School size	.10	.04	2.90	1.11	<.01
College track slope					
Slope (γ_8)	−.81	.08	−10.68	.42	<.001
	Variance component	*DF*	x^2	*p*	
Intercept (γ_0)	.29	745	888.03	.000	

In this model, tracking continues to have a significantly negative effect on student dropout ($t =$ –10.67, $p < .001$) as well. Students enrolled in the college track continue to be considerably less likely to dropout; students in the bottom 25th percentile in the college track are far less likely to dropout than students in the top 75th percentile in the general track. This relationship is depicted in Figure 1.

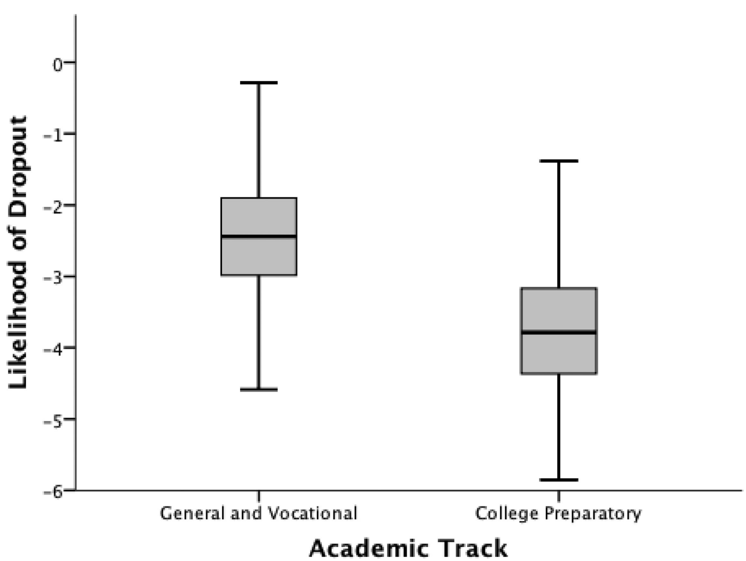

FIGURE 1 Likelihood of dropout by academic track

DISCUSSION

This study is one of the first to employ multilevel models with school-level and student-level measures of tracking to quantify the extent to which tracking influences student dropout for a nationally representative sample of high school students. In answering our three research questions, three important findings emerge.

First, academic tracking (college preparation) either advantages or disadvantages students across racial and class lines. This finding parallels earlier research (Blanchett, 2006; Dauber, Alexander, & Entwisle, 1996; Hanushek & Wößmann, 2006; Mickelson & Everett, 2008; Solórazno & Ornelas, 2002), in that the students most underrepresented in higher tracked courses are either Hispanic, have an IEP, or come from lower SES backgrounds.

Second, our HGLM results suggest that high school students not placed in the higher track are roughly 60% more likely to dropout. The relationship between tracking and dropout has been given attention in the literature (Alexander, Entwisle, & Horsey, 1997; Brunello & Checchi, 2007; Plank, DeLuca, & Estacion, 2008); however, our study is unique in that we are able to quantify the negative effect of tracking after controlling for both student- and school-level differences.

Third, our results suggest that tracking continues to be a substantial predictor of student dropout even after accounting for differences in school academic climate (i.e., morale, focus on learning, and academic expectations). Although a school's academic climate matters (Brand et al., 2003; Danielsen et al., 2010; Urick & Bowers, 2011, in press), and often separates high performing schools from low performing schools (MacNeil, Prater, & Busch, 2009), our study suggests that the mere placement of a student into an academic track greatly influences the likelihood that a student will dropout.

Limitations

An important limitation to consider is that our model did not account for students' grades, which have been shown to significantly predict dropout (Bowers, 2010a, 2010b; Bowers & Sprott, 2012) nor growth in reading, which would be a more appropriate control variable because reading is an obvious prerequisite for academic success; however, ELS did not administer a reading assessment during students' senior year. Further, recent research suggests that using discrete categories ("college preparatory" or "vocational track") as the sole measure of academic track ignores differences in tracking systems across schools and may not reflect the actual courses that individual students take (Kelley, 2004, 2009). Some may fault our study for ignoring these complexities; however, our findings demonstrate that this categorization of academic track, such as college preparatory or vocational track, severely impacts students' likelihood of dropping out of high school.

As with all methodologies involving analyses using explanatory techniques, it should be stated that the results of this study are not causal. At best, this study provides evidence to suggest that tracking is associated with certain outcomes. The effect size of tracking on dropout, however, is troubling.

Implications and Future Research

Those involved in educational reform would benefit from a better understanding of both the complexities and practicalities of the relationship between tracking and student success. Although this subject has been given attention in the literature for many years, schools should not continue to stratify students into trajectories that are associated with such unequal school outcomes. We hope that our findings become a catalyst for a call to action: Something needs to be done to address academic tracking on a national level.

This study further supports Hallian's (1990, 2003) claims that being placed in a higher or lower academic track is associated with profoundly different outcomes in high school. In keeping with similar suggestions in the field, our results point to the need to increase support to students placed in lower academic tracks (e.g., Ruben & Noguera, 2010). While we recognize educational policymakers are concerned with multiple factors (e.g., class size, supporting individuals with special needs, funding) in their decision-making, tracking, from our perspective, is not sound policy. We must warn readers that the solution, however, is not as simple as detracking school programs, because de facto tracking can continue even after explicit forms of school tracking policies have been terminated (Rosenbaum, 2000). Detracking must be combined with a comprehensive support system that targets the students who are typically underserved (Ruben & Noguera, 2010).

Future research could extend the current tracking model to include other models of dropout predictors. In particular, teacher-assigned grades have been shown to significantly predict whether a student drops out of high school (Bowers, 2010a, 2010b; Bowers & Sprott, 2012). An interaction between teacher-assigned grades and school academic climate may reduce the effect of tracking on students by providing all students, regardless of academic track, with high expectations and morale. A HGLM that models high school dropout with a cross-level interaction between school academic climate and student grades might explain even more of the variance attributed to tracking. This future study could provide school leaders with a malleable set of factors that may decrease the likelihood that students in the lower academic tracks will drop out of high school.

The current study is unique in that it uses a national sample to illustrate the dramatic effects that tracking has on students' likelihood of dropping out of school, even after controlling for differences in a school's academic climate. We hope that the findings of this study help school leaders and educators better recognize the importance student placement can have on the likelihood that students graduate. Steps should be taken to ensure that students placed in lower academic tracks receive the supports needed to become academically successful. Educators should be aware of the ways in which academic tracking within their school disadvantages some students for the sake of others.

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Jacob Werblow is an assistant professor in the Department of Teacher Education at Central Connecticut State University. His areas of research include school equity and effectiveness, the achievement gap, parent engagement, and educational measurement.

Angela Urick is an assistant professor in the College of Education, Department of Educational Leadership at Minnesota State University, Mankato. Her research interests include principals' and teachers' perceptions of leadership, leadership styles, school climate, teacher retention, school facilities, and school improvement

Luke Duesbery is an associate professor in the School of Teacher Education at San Diego State University, and the Director of the Center for Teaching Critical Thinking and Creativity at teach2think.org. His research interests include educational measurement, advanced learners, curriculum design, mathematics instruction, and classroom technologies.