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Redefining Risk: Human Rights and Elementary School Factors Predicting Post-Secondary Access

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Abstract: While there is a widespread consensus that students' pathways towards postsecondary education are influenced early in life, there is little research on the elementary school factors that shape them. Identifying educational 'risk factors' directs attention to barriers that may warrant scrutiny or action under human rights legislation. New findings from a unique, longitudinal data set collected and developed by the Toronto District School Board highlights key factors, established in elementary school, as to how many students do not enter into post-secondary studies in Ontario. The *majority* of students suspended at any time, students in self-contained special education programs, and/or students who missed more than 10% of classes in grade 4 do not go on to PSE.

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These organizational factors are *more* predictive of students' acceptance to PSE than individualized measures of preschool readiness, academic achievement in grade 3, race or parental education. These structural 'risks' are strongly correlated with race and disability. In light of research that identifies promising, evidence-based practices available to reduce these risks, breaking down these barriers should be a priority from the perspective of improving PSE access and overcoming what may well amount to systemic discrimination.

Keywords: Post-secondary access; elementary school; Toronto, Canada; absenteeism; special education; suspensions; longitudinal cohort study; 2000-2017

Redefiniendo riesgos: Derechos humanos y factores en la escuela primaria que pueden predecir el acceso a la educación postsecundaria

Resumen: Aunque hay un consenso amplio de que la vida temprana influye en el camino de los estudiantes hacia la educación postsecundaria, no ha habido muchas investigaciones sobre los factores en la escuela primaria que juegan un papel en eso. La identificación de riesgos educativos dirige la atención a barreras que justifican un escrutinio o acciones conforme a las leyes sobre derechos humanos. Nuevas descubiertas de un conjunto de datos longitudinales específicos, coleccionados y analizados por el Consejo de Educación del Distrito de Toronto, indican factores clave que operan en la escuela primaria y que explican porque muchos estudiantes no llegan a la enseñanza postsecundaria en la provincia de Ontario. La mayoría de los estudiantes suspendidos a cualquier tiempo, de los estudiantes en grupos separados de educación especial y/o de los estudiantes que faltaron a más de 10% de sus clases en el cuarto año de la escuela primaria no llegan a la enseñanza postsecundaria. Esos factores organizacionales pueden predecir mejor la admisión de estudiantes a la enseñanza postsecundaria que medidas individualizadas de preparación preescolar, el rendimiento escolar en el tercer año lectivo, la raza o el nivel educativo de los padres. Esos "riesgos" estructurales tienen una fuerte correlación con la raza y la invalidez. A la luz de las investigaciones que identifican medidas prometedoras y comprobadas y disponibles para reducir esos riesgos, derribar esas barreras debería ser una prioridad del punto de vista de mejorar el acceso a la educación postsecundaria y de superar lo que posiblemente es una forma de discriminación sistémica.

Palabras clave: educación postsecundaria, escuela primaria, Toronto en Canadá, absentismo escolar, educación especial, suspensiones, estudio de cohorte longitudinal, 2000-2007

Redefiniendo riscos : Direitos humanos e fatores na escola primária que podem prever o acesso à educação pós-secundária

Resumo: Embora haja um amplo consenso de que o caminho dos alunos para a educação pós-secundária é influenciado pelos primeiros anos da vida, não houve muitas pesquisas sobre os fatores na escola primária que desempenham um papel nisso. A identificação de riscos educacionais chama a nossa atenção para barreiras que merecem um exame detalhado ou ações segundo as leis sobre direitos humanos. Novas constatações de uma coleção de dados longitudinais específicos, recolhidos e estudados pelo Conselho de Educação do Distrito de Toronto, apontam fatores importantes no ensino primário que explicam porque muitos alunos não chegam ao ensino pós-secundário na província de Ontário. A maioria dos alunos suspendidos a qualquer tempo, dos alunos em grupos separados de educação especial e/ou dos alunos que faltaram a mais de 10% das aulas na quarta classe não chegam à educação pós-secundária. Esses fatores organizacionais podem prever melhor se alunos chegam ou não à educação pós-secundária do que medidas individualizadas de preparação pré-escolar, o desempenho escolar na terceira classe, a raça ou a escolaridade dos pais. Esses "riscos" estruturais se correlacionam fortemente com a raça e a invalidez. À luz de pesquisas que apontam medidas prometedoras e comprovadas e disponíveis para reduzir esses riscos, a

demolição dessas barreiras deveria ser uma prioridade com o objetivo de melhorar o acesso à educação pós-secundária e de superar o que pode até ser uma forma de discriminação sistêmica.

Palavras-chave: acesso à educação pós-secundária, escola primária, Toronto no Canadá, absenteísmo escolar, educação especial, suspensões, estudo de coorte longitudinal, 2000-2017

Redefining Risk: Human Rights and Elementary School Factors Predicting Post-Secondary Access

In Canadian schools over the past 15 years, there has been a strong emphasis on using graduation rates as a crucial measure of student success (e.g. Ontario Ministry of Education 2017). While high school graduation is still very important, an increasing pool of Canadian and international evidence points beyond graduation to post-secondary access as the key factor that makes a difference in students' lifetime outcomes today. Post-secondary education (PSE) boosts earnings, improves health outcomes and self-reported happiness, and is associated with higher levels of civic participation (e.g., Chief Public Health Officer, 2008; Organization for Economic Cooperation and Development (OECD), 2013; Turcotte, 2015). The 2016 Canada-wide census points to the fact that the majority of Canadian adults – 54% – had some PSE. An additional 10.8% had an apprenticeship or skilled trades certification (Statistics Canada, 2017). Success in PSE significantly improves the chance people will be employed. It is estimated that more than 70% of future jobs, and almost all of them that pay a decent wage – will require PSE (Government of Canada, 2015). As both enrollment, expectations and entry-level job qualifications steadily push upwards, access to PSE in Canada as well as many other countries has moved from a “mass” phenomenon to a “universal” one, in the words of Martin Trow (Burrage, 2010; OECD 2019, p. 193). This major shift has implications for the K-12 education system as well as the students for whom it becomes increasingly obligatory, and the post-secondary sector which must embrace new roles and norms.

One central implication of the steady broadening of PSE for the K-12 sector is a shift in the ‘goal posts’ by which success is defined. If almost all students go on to post-secondary, then public education will be judged, in part, by its success in getting students beyond graduation to (and through) college, university or apprenticeship. To date, in Canadian education, and certainly in its largest province, Ontario, the major measures of success or failure are largely limited to test scores on provincial assessments and high school graduation (Government of Ontario, 2014; Radwanski, 1987). The vast majority of research regarding student success in public education has been focused on improving test scores and mitigating the risk of students not reaching graduation. At the same time, the large body of research on access to PSE in Canada has tended to focus on the point of entry to post-secondary, or students' preparation, decision-making and opportunities at the *end* of high school (for recent research reviews, see Gallagher-Mackay, 2017, and Currie, Leonard, Robson & Hunter, 2013). Even the rich longitudinal data exploring students' educational pathways and attitudes in Canada's Youth in Transitions Survey (YITS) largely began with fourteen-year old students (see Motte, Qiu, Zhang, & Bussiere (2008), and more generally, Finnie, Mueller, Sweetman & Usher, 2008, Finnie, Frenette, Mueller & Sweetman, 2010).

Yet there is a widespread consensus that students' pathways to post-secondary are heavily influenced earlier in life, well before high school. In terms of early influences, there is important research that looks at students' home and cultural environments as factors that shape post-secondary decision-making (e.g. Finnie, Sweetman & Usher, 2008). Probably the most central finding in the literature on equity of access to postsecondary education is the significance of students' socio-economic status as a driver of PSE enrollment. The definition and impact of socio-

economic status on educational outcomes is the subject of a substantial literature, dating back at least to Coleman et al. (1966) whose findings about the relative importance of the home environment have been so influential; there continues to be a significant international literature around the existence of, and mechanisms behind, SES gaps in educational outcomes – from test scores to high school graduation and post-secondary access (see e.g. Chmielewski, 2019; Downey & Condrón, 2016; Hanushek, 2019; Lareau, 2003; Raudenbush & Eschmann, 2015; Reardon, 2011).

In the Canadian literature to this point, it is clear that family educational background is the most significant individual factor, having a greater impact than family income (Finnie & Mueller, 2008; Mueller, 2008). The interaction of these factors varies across cultural groups (e.g. Finnie, Childs & Wismer, 2012). Yet despite the systemic challenges faced by certain groups, many more parents and students – across socio-economic, cultural and racial groups – have expectations that they or their children will go onto post-secondary than the numbers of students who actually proceed (see e.g., Yau, Roselen & Archer, 2015).

However, significant students' backgrounds and home experiences are to educational outcomes, it is equally critical to understand what happens in the other major context for student development – at school. There is little doubt that there is an interaction between students' background, home environment and schooling experiences. Attention specifically to school environments, however, may yield distinct and policy-actionable findings. In Canada, there is almost no data and analysis about the impact of *early* educational experiences and school practices on students' post-secondary access and outcomes. The American literature, perhaps because of a much stronger data infrastructure on equity of access (Gallagher-Mackay, 2017), has identified some predictors. The work of the Baltimore Educational Research Consortium (e.g. Connolly & Olson, 2012) was particularly important. A recent review for the American Institutes for Research found no 'indicators' of postsecondary success, defined as measures with an established threshold, but pointed to reading by grade 3, demonstrated social competence, and low absenteeism as factors that appear to be predictive of post-secondary outcomes (Hein, Smeardon, Sambolt, 2013). The transferability of U.S. evidence to the Canadian context, given significant differences in patterns and policies around PSE access between the countries (see e.g., Belley, Frenette & Lochner, 2014) should be approached with caution.

There is a growing body of Canadian evidence on key high school practices that adversely affect students' progress to PSE – particularly academic streaming, where students are sorted by perceived abilities into distinct learning environments with different curricula (internationally, see e.g., Hanushek & Wossemann, 2005; Oakes, 1985; Organization for Economic Cooperation & Development, 2016; in Canada, see Education Quality and Accountability Office, 2012; King, Warren, King, Brook, & Kocher, 2009; Robson et al., 2018). YITS data, integrated with data from the Programme for International Student Assessment (PISA), showed a relationship between achievement patterns of 14-year-old students and their later postsecondary and workforce pathways (Hango, 2013; Knighton & Bussiere, 2006; Organization for Economic Cooperation and Development, 2010). Frenette (2011) used that data set to explore the gaps between standardized test scores for Indigenous¹ students, which were higher than grades, yet weakly related to PSE access.

Unfortunately, there is no comparable body of research for elementary schools. Indeed, it can be argued that elementary school experiences are seldom on the minds of those who think about post-secondary access; and, conversely, nor is post-secondary access a particular priority for those working in or studying elementary schools.

¹ Note that Statistics Canada uses the term 'Aboriginal'.

New findings from a unique, massive longitudinal data set collected and developed by the Toronto District School Board highlights the potential for better understanding elementary school factors which appear to have a significant influence on students' academic pathways towards – or away from – post-secondary. This research suggests that there are a number of factors established by the end of elementary school, which, when taken together, allow us to provide insight on why many students do not enter into Ontario post-secondary studies after five years of high school.

For this research study, we wanted to investigate two questions relative to various potentially salient risk factors in elementary school. First, of students who do not apply to university, what proportion possess a given risk factor? And conversely, what proportion of students possessing this risk factor do not apply to post-secondary? This analysis allows us to judge whether the risk factors are relatively accurate predictors of students' likelihood in accessing post-secondary, and also, whether the factors for risk identified through this study are attributable to a large proportion of students unlikely to continue into PSE. In our view these "risk factors" represent barriers to opportunity that many historically marginalized students face.

Theoretical Framework

This study is rooted in the law and policy of human rights, informed by a critical policy studies lens. While there are many long-standing critiques that point to the limits to rights discourses (see e.g., Kairys, 1998; Petter, 2010; Williams, 1991), claims based on human rights continue to have significant political and legal impact (Merry, 2006; Scheingold, 2004). To the extent human rights represent standards of inclusion and participation for all, regardless of ascribed characteristics, they represent widely legitimate social aspirations. At the same time, under human rights legislation across Canada, these standards of inclusion also create *obligations* on both public and private actors to take steps to recognize and overcome barriers to full participation by all, particularly those who have historically been excluded from opportunities and full social inclusion.

It is widely recognized that discrimination and inequality are frequently created through routine, often unintentional practices (see e.g. C.N. v. Canada (Canadian Human Rights Tribunal), [1987] 1 SCR 1114), and through social structures that embed and naturalize social hierarchies in common-sense assumptions like merit, ability or thresholds for disciplinary action such as suspensions or expulsions (e.g., Brown and Parekh, 2013). While in the United States, a judicial finding of discrimination in some cases requires a demonstration of intent, the focus on *systemic* discrimination in Canadian law allows us to scrutinize not only particular decisions at a point in time (i.e. admission to post-secondary) but the ways in which structured pathways shape the participation of disparate groups. In this paper, rather than start with differential outcomes for different groups (e.g., racialized or disabled students)², our approach was to use longitudinal data to identify and draw attention to key barriers to post-secondary participation for *all* students. If indeed, these barriers disproportionately affect students who are entitled to human rights protection, it is our goal to show that a human rights framing helps de-individualize the challenges faced by these students and create a heightened sense of obligation and possibility on the part of our public education system to address the problems that are identified. As the Ontario Human Rights Commission has observed:

...when dealing with systemic discrimination, progress is more likely if we isolate social systems where even small shifts in the landscape can have big ripple-out effects, and then use the breadth of our functions and powers to effect change in those priority areas. The laws of physics apply: the most stagnant and complex

² Members of the research team have also taken the reverse approach in a number of studies using related data. See Parekh, 2013; Parekh et al, 2018; Robson et al, 2014.

systems often need the biggest push if we want to see progress towards substantive equality (Ontario Human Rights Commission, 2017).

In this approach to human rights work, there is a shift from side-by-side comparison of candidates with particular characteristics at a key decision-point (which, in this case, would put an emphasis on post-secondary institutions' admissions choices) to a focus on the processes that shape educational opportunities leading up to that moment – which shifts the emphasis into the earlier years.

A key part of an active scholarly agenda around human rights and systemic discrimination is monitoring systems both to identify the points where the landscape can shift, and to track the impact of the both landscape and shift on groups entitled to rights protection (see e.g. Rioux, Pinto & Parekh, 2015). Education has always been a key gatekeeper to full social participation; more and more, in North America, PSE is a pre-requisite for full social inclusion. The right to education in the Universal Declaration of Human Rights is not absolute³ – but for 'technical and professional education', it promises equal access to all, on a basis of merit. States have an obligation to ensure access is meaningfully equal and are expected to attend to patterns of disproportionality and to ensure groups of students who have faced historical discrimination and stigma have an equal opportunity to demonstrate merit. A critical policy lens, premised on a need for greater substantive equality, suggests that it is vitally important we denaturalize the currently unequal landscape facing some of the most vulnerable students in the system.

The Toronto District School Board

The Toronto District School Board (TDSB) is the fifth-largest school board in North America, with approximately 246,000 students enrolled in approximately 500 elementary and 100 secondary schools. Highly diverse, just over one-third of students are white, approximately half are Asian, 12% Black, and approximately 2% are Latino. Just under 30% of students live in poverty (Toronto District School Board, 2015, p. 27).

The TDSB has created and extensively analyzed a longitudinal data set, unique in Canada, that combines a rich range of information about students over time. The Board has census-based survey data about students' backgrounds (including family education, gender, race, newcomer and family status) and attitudes, plus comprehensive administrative data including results of large-scale assessments over time, and information about key educational processes such as identification for special education and placements, school attendance, discipline, course choices in high school, and applications to college and/or university.

Methodology

Data Sample

This study employs a single cohort of TDSB students who started senior kindergarten in 1999-2000, the first cohort for which there is assessment data starting in kindergarten. Data for these students is available for a thirteen-year period, corresponding to potentially the end of a fifth year of post-secondary. This data allows – for the first time – an in-depth look at the elementary school factors that appear to predict students confirming offers of admission to an Ontario college

³ United Nations. (1948). Universal Declaration of Human Rights, 26(1). "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit."

and/or university. This unique dataset provided a number of key data points that allowed us to explore factors previous research has found to be correlated with general academic risk in elementary schools (see below for references). These include early indicators of overall child development at school entry, academic achievement by age 8, demographic factors, and a range of school system factors. The study uses both descriptive statistics and a regression analysis to explore the relative significance of these factors. The use of administrative data⁴, as in this study, has both advantages and disadvantages. The biggest disadvantage, of course, is that the measures are not chosen primarily because of their theoretical relevance but because of their relevance to use-in-practice and their acceptability to the diverse constituencies who may have an interest in collecting the data. With complex concepts like the identification of special education needs or suspensions, the data may well tell us as much about the system as it does about the students it represents. There are other potentially relevant risk factors – at the individual or school level – that may not be represented within the data set, such as student motivation or engagement, or school climate and therefore cannot be considered in this paper. On the other hand, this data exists, where the Canadian government withdrew funding for longitudinal studies on children, youth and education almost a decade ago; it is census-based, rather than a sample which increases its validity; and, because and because the data is an intrinsic part of the education system, it has credibility with educators and policy makers who may want to implement change and significant ‘go-forward’ potential for tracking the impact of any changes over time.

Data Variables

Post-secondary applications. The outcome of interest was whether the student applied to an Ontario university or college. This information was obtained from the Ontario University Admissions Centre (the province’s centralized undergraduate university admissions processing centre) and the Ontario College Admissions Service (the centralized admissions service for provincial colleges of applied arts and technology). This data was integrated into the TDSB data base and set up as a dichotomous variable, where 1=applied and 0=did not apply.

Early indicators of overall child development. In 1999-2000, for the first time, all senior kindergarten students in two large, diverse regions of the board⁵ (3091 students, ages 4-5) were assessed using the Early Development Index (EDI) a highly influential measure of students’ capacities in five domains – physical health and well-being, social competence, emotional maturity, cognitive development, and communication skills and general knowledge (Guhn, Janus & Hertzman, 2007; Guhn, Zumbo, Janus, & Hertzman, 2011; Harrison, Janus, Goldfied, Guhn & Brinkman, 2016; Janus & Offord, 2007). Used with over a million children since 2004, the EDI has been demonstrated to be predictive of students’ academic achievement into the middle years (e.g., Brinkman, et al (2013)). Using the EDI, a student is considered to be ‘highly vulnerable’ if they have a low score in two or more domains (Guhn, Zumbo, Janus, & Hertzman, 2011).

⁴ Administrative information utilized in this study combined a range of information. The base was a subset of the TDSB Grade 9 cohort dataset, which followed a cohort of students from when they started in Grade 9 in the TDSB until the end of fifth year secondary in Fall 2013. Included in the Grade 9 cohort dataset was information from Ontario universities and colleges; course data; and detailed socio-demographic information from the TDSB’s Student Census. To this was added a range of elementary information, such as performance on the Grade 6 provincial tests; absenteeism; suspensions; and special education programming.

⁵ In 1998, seven school boards were amalgamated to form the Toronto District School Board. In 2000, the Early Development Index was used with all the students in the legacy Toronto Board of Education and North York Board of Education.

Academic achievement in grade 3. Students in the 1999-2000 cohort also took part in standardized assessments of reading, writing and mathematics administered by the provincial Education Quality and Accountability Office (EQAO) in grade 3. EQAO test scores are reported as levels 1 (lowest) through 4 (highest achievement). For this analysis, students were considered to be educationally at risk if they scored at level 1 in any of the Reading, Writing, or Mathematics tests. Prior research has suggested that grade 3 literacy tests, in particular, are highly predictive of students' academic success and high school graduation (e.g., Fiester, 2010).

Student absenteeism. Chronic absenteeism has been identified as a factor that affects both student academic achievement and students' likelihood of reaching graduation as well as being highly correlated with a number of other issues including health, poverty and family functioning (e.g., Ginsburg, Jordan, & Change, 2014; Gottfried, 2010; Kearney, 2008; TDSB, 2009). A measure of student absenteeism was available for students, by looking at students' absenteeism in the fourth grade. Grade 4 was the earliest grade for which complete data was available. Students with absenteeism over 10% were deemed at risk.

Special education status and setting. Special education identification, and particularly self-contained special education program placement, are well established in the literature as risk factors affecting post-secondary access and overall educational success (Brown & Parekh, 2013; Mitchell, 2010). Research further demonstrates that even students with above-average test-scores who are placed in self-contained settings are likely to be streamed into programs with reduced educational opportunities (Brown & Parekh, 2019). The process of identifying students' special education needs (SEN) and establishing accommodations or placement takes years within the school system and largely takes place in the elementary panel. Therefore, Grade 5 is a point in time at which most students would have been identified and/or placed in special education. Students with identified SEN have an Individualized Education Plan (IEP). The TDSB data allows researchers to identify students who have an IEP, (with or without an identification of exceptionality) as well as placement information. Students who are placed in a special education program for 50%-100% of the school day are identified in this study as being in a self-contained setting.

School Discipline (Suspensions): There is a strong evidence base suggesting school discipline practices – particularly exclusion from school -- have a significant impact on students' engagement, achievement and graduation (e.g. Balfanz, Byrnes, & Fox, 2013; Gray et al., 2017; Zheng, 2013; Zheng, & De Jesus, 2017; Zheng & De Jesus, 2018.) The TDSB Cohort includes data on whether students have ever been suspended during the elementary years.

Socio-demographic variables: Students' demographic variables available within the TDSB data set include gender and month of birth derived from registration data, and self-identified racial identity, student-reported parental education and family structure derived from the 2006 Student Census. Gender is important because research suggests that male students are less likely to apply to post-secondary; and month of birth matters since younger students are perceived as less likely to apply to post-secondary (e.g. Brown, 2006, pp. 123-124). Individual demographic data was collected for each student in the cohort through the 2006-07 TDSB Student Census. The Student Census includes all students between Grades 7 and 12; in 2006, a total of 289 schools were involved. A Student Census database was created from the processed, verified data. Each of these factors have been shown to have a relationship with post-secondary access. The TDSB data set is unique in Canada in allowing the Board to systematically examine students' race, parental education, and family structure over time by integrating this demographic data into the larger student information system.

Existing TDSB research as well as the significant body of international research on racial achievement gaps show Black, Latino and Indigenous Students are less likely to apply to post-secondary (e.g., Brown & Tam, 2017; U.S. Department of Education, 2017). Family structure has also been shown to be relevant over time in the TDSB (ibid.) and elsewhere (e.g. Pagani, Vitaro, Tremblay, et al., 2008). Students whose family structure is not two-parent are less likely to apply.

Parental education, alongside family income and measures of cultural capital such as number of books in the home is a key measure of socio-economic status widely recognized in the policy and sociological literature (e.g., Downey & Condrón, 2016; Hanushek, 2019; OECD, 2016; Raudenbush & Eschmann, 2015; Reardon, 2011). The TDSB does not, at this time, include a variable on family income in their Student Census. TDSB and international data has shown that students whose parents did not attend PSE are less likely to go onto PSE (Brown & Tam, 2017; Finnie & Mueller, 2008). It is important to note that while the data variables included in this study are often represented through singular characteristics that in many instances, there is significant intersection between variables. More on the intersection of identities and their connection to structural factors is taken up in the discussion.

Data Exclusions

For the purposes of this study, students who left the board before the end of high school or students who entered the board partway through their schooling were excluded. This likely means the study under-estimates the percentage of students who do not go onto post-secondary, both because it does not consider early-school leavers (a particularly vulnerable group) and because it undercounts the significant number of students who arrive in Toronto schools through immigration; those who immigrate during adolescence, in particular, have been shown to be less likely to go on to post-secondary (Corak, 2011). At the other end, the study likely underreports one group of students who access post-secondary – those who pursue apprenticeship. Very few students proceed directly from secondary to apprenticeship programs in Canada and there is not, at this point, a centralized way of tracking students from secondary into apprenticeship (Refling & Dion, 2015).

Data Analysis

The first step was to run a descriptive analysis looking at the identified risk factors for post-secondary applications. Based on these relatively dramatic findings, we conducted a binary logistic regression to investigate the significance of the individual risk factors in relation to students' likelihood in applying to PSE when all variables were considered. A binary logistic regression is employed when "the dependent variable is dichotomous or binary in nature" (Statistics Solutions, 2019). Assumptions for a logistic regression include adequate sample size, limited intercorrelations between independent variables, and an absence of outliers (Statistics Solutions, 2019). All of these assumptions/conditions were satisfied within our analysis. The importance of using a binary regression analysis is that the statistical model accounts for the interactions and relationships between independent variables as well as outcome factors. The purpose of the binary logistic regression was to determine which independent variables were most important in the early determination of potential risk for non-access to PSE.

Results

Overall, 23% of students in this cohort did not apply to PSE in five years of secondary school (See Table 1). Perhaps counter-intuitively, most of the students who might have been considered 'at risk' based on an EDI finding of 'vulnerability' (low EDI scores in two domains or more), or very low EQAO scores in Grade 3, ended up applying to post-secondary. Furthermore, most students who did not apply to PSE were *not* flagged by these same variables. Students whose

parents had not attended university, and male students make up the largest group of non-applicants, but roughly three-quarters of each of those groups will go on to apply to PSE. While all aforementioned student groups are at an elevated level of risk, their level of risk is scarcely destiny and, in fact, the odds are likely that they will go on to attend.

However, a *majority* of students in each of the following three groups – those who were suspended at any time during elementary school, those who missed more than 10% of school days in grade 4, and those in self-contained special education settings – *did not* apply to post-secondary. While each of these groups was relatively small compared to the total population of students, students within them had *considerably* higher risk of not continuing into PSE, and thereby achieving what is increasingly considered educational success and the pre-requisites for future economic security and long-term health. For example, over half (52%) of the students with very high absenteeism in Grade 4 did not apply to post-secondary. That said, students with high absenteeism accounted for only 18% of all students who did not apply to post-secondary.

Table 1
Percentage of students with identified risk factors not applying to PSE

	% of all students who do not apply to PSE	% of students with this identified risk factor who do not apply to PSE
All Students		23%
Elementary (JK to Grade 8)		
EDI high risk (2 or more domains)	18%	40%
Grade 3 EQAO Level 1 or below (3 subjects)	38%	34%
More than 10% Absenteeism Grade 4	18%	52%
Self-contained Special Education Needs (Grade 5)	16%	56%
Integrated Special Education Needs	15%	39%
Suspended during elementary	32%	54%
Demographic		
Parents without university education	70%	26%
Male	60%	27%
Other than 2 parent family structure	35%	36%
Black/Aboriginal/Latino students	22%	37%

Taken together, however, students who had even one of these factors – even one suspension anytime in the elementary years, missing more than 10% of classes in one year, or had been placed in a self-contained special education program – accounted for fully half the students who do not apply to post-secondary (468 of 929 students who did not apply to post-secondary, or 50%). Furthermore, if students had more than one of these risk factors, their chances of going on to PSE decreased significantly. Taken together, these three factors provide a very powerful predictor of who is highly at risk of not going onto post-secondary.

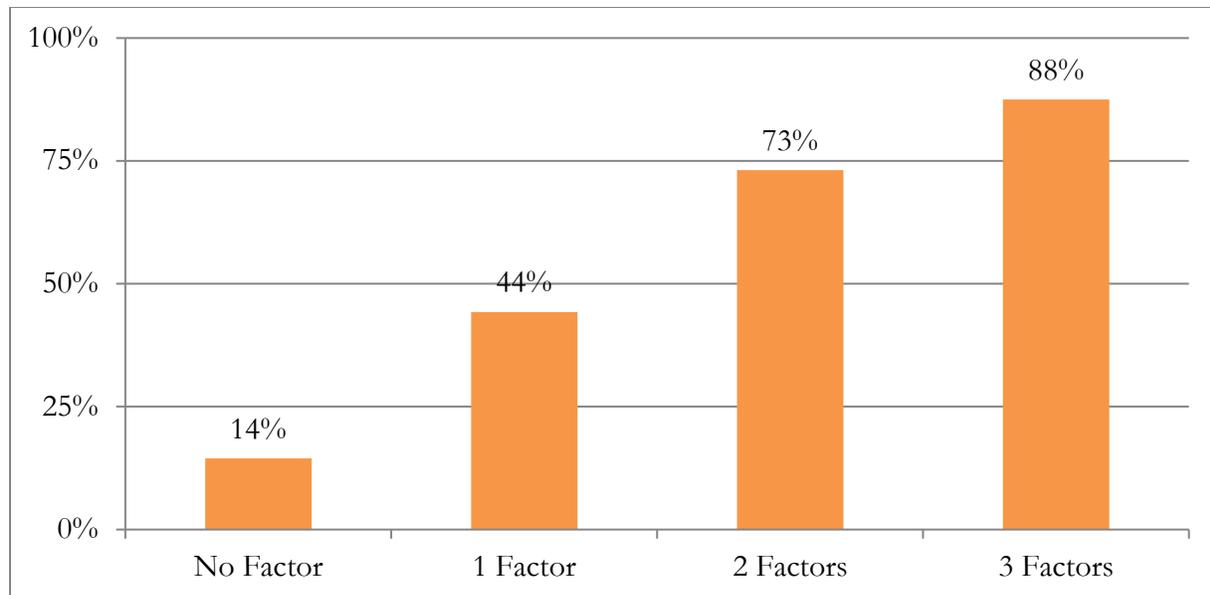


Figure 1. Percentage of students not applying to post-secondary by number of key risk factors (high absenteeism, self-contained special education, suspensions)

To investigate the significance of the individual factors and examine the interactions between the factors highlighted in the descriptive statistics, we also conducted a binary logistic regression. Overall, because of the large numbers involved, and because factors were chosen based on the larger literature around academic risk, almost *all* the risk factors identified were found to have a statistically significant – and negative – relationship to the odds a student would apply to post-secondary. Strikingly, however, students’ individual characteristics, such as whether students were born earlier in the year, whether they were male, and whether students had been found to be “at risk” on the EDI had very *limited* explanatory effect on students’ PSE applications. The main exception was family structure: coming from a single-parent family had a powerful effect. School- related factors, such as elementary suspensions, and students’ placement in self-contained special education settings, had a very *powerful* impact on the odds a student would go on to PSE. In fact, many of the factors – including those most closely associated with individual student achievement or students’ development in the early years – were *not* particularly accurate as predictors as compared to structural or school-based factors.

Table 3
Logistic Regression based on elementary risk factors

	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Elementary Suspensions	1.245	0.114	119.39	1	0	3.475	2.779	4.344
EDI High Risk	0.084	0.141	0.359	1	0.549	1.088	0.826	1.434
Self-contained SEN	0.955	0.175	29.701	1	0	2.597	1.843	3.661
Regular SEN	0.44	0.139	9.938	1	0.002	1.552	1.181	2.04
Absenteeism (0-100%)	0.093	0.01	84.847	1	0	1.098	1.076	1.12
Low Achievement Grade 3 Tests	0.392	0.094	17.322	1	0	1.48	1.231	1.78
Less than University parental education	0.296	0.088	11.231	1	0.001	1.344	1.131	1.598
Black, Hispanic or Latino	0.33	0.114	8.405	1	0.004	1.391	1.113	1.739
Male	0.338	0.088	14.858	1	0	1.403	1.181	1.666
Youngest four months of birth	-0.213	0.101	4.463	1	0.035	0.808	0.663	0.985
Other than Two Parent Family	0.517	0.1	26.609	1	0	1.678	1.378	2.042
Constant	-2.451	0.103	567.942	1	0	0.086		

Discussion

This research on elementary risk factors reveals a paradox – and an opportunity – for educators and researchers. While the research highlights serious challenges for certain groups unlikely to go on to post-secondary, there is cause for both optimism and action based on relative significance of school-level, potentially policy-sensitive factors, emerging from this analysis. Notably, most of the risk factors that are highly predictive of whether students will not apply to post-secondary are ones in which schools have significant influence. There is a significant body of evidence that suggests the identified risk factors can be directly affected by ambitious and thoughtful school policies and practices.

Chronic Absenteeism

Absenteeism is an issue where both home and school have an important role to play. Absenteeism, especially in elementary school, has been well-recognized as a proxy for issues related to ill-health, parenting, or poverty-related challenges such as inability to afford transportation or childcare (see e.g. Epstein & Sheldon, 2002; Kearney, 2008). At the same time, issues of attendance can *also* reflect on issues of school climate, or a disconnect between home and school in which schooling processes and school climate play a considerable role (ibid.). While the research is clear that there is no ‘silver bullet’ for boosting student attendance, several large jurisdictions – and many individual schools – have effectively worked on issues of chronic absenteeism using a wide range of strategies. Evidence points to positive results from measures including post-card nudges and school-based paediatric health centres to major, data-driven interagency task forces which demonstrate major changes in patterns of problematic attendance (see e.g., Balfanz & Byrnes, 2013; Railsback,

2004; Rogers et al, 2017; Schultz & Gandy, 2007; Webber et al., 2003). If non-attendance is clearly recognized as a major risk factor, this apparently routine part of school life may receive additional priority in the busy lives of educators and office staff as well as at the policy level.

Self-contained Special Education

Earlier TDSB research shows that Toronto places far greater proportions of students identified with Special Education Needs (SEN) in self-contained settings than the provincial average (Brown, Parekh & Marmureanu 2016). Ability grouping students into special education programs has long been identified as a key barrier to academic achievement for that group. Placing students within groups designated for students of 'lower ability' can result in fewer curricular opportunities and less instruction time, lowered teacher expectations, and often leads to a permanent placement (Mitchell, 2010). Supporting these findings, research by Parekh and Brown (2019) shows that students placed in self-contained settings are far likelier to be streamed into Applied level courses in secondary school *even when they have comparable achievement* to students being streamed into Academic courses which are associated with much higher achievement and much greater access to PSE (e.g. Robson et al., 2019). This finding suggests an institutionalization of lowered expectations for students placed in self-contained special education programs, more limited exposure to PSE-appropriate curriculum, and often leaves students either ineligible, unprepared and/or believing they are unable to apply and pursue post-secondary opportunities.

Suspensions

The consistent, adverse educational impact of suspensions has been demonstrated repeatedly both in the TDSB (see Brown et al., 2017; Zheng & De Jesus, 2017, 2018) and internationally (e.g. Losen & Martinez, 2013). Concerns centre around the racially disparate impact of a 'school to prison pipeline', the lost educational opportunity when students are removed from the learning environment, and/or the philosophical commitment to reaching all students. There has been considerable effort in some schools to change patterns of suspension, resulting in wide variability in suspension rates even among schools with similar socio-demographic profiles (e.g., Gray et al., 2017). A systematic review of school-based interventions to reduce disciplinary exclusions produced cautiously optimistic evidence for at least short-term effectiveness of these interventions, and called for further, rigorous study (Valbenito et al., 2018). Our data further illustrates the significant, long-term outcomes related to suspensions and hopefully adds to pressure on all schools to develop alternative approaches to the challenges of discipline and school safety, and to build understanding and support for non-exclusionary supports in the broader community.

Implications

Implications for future research

Since all of these very significant factors affecting PSE access in the elementary years are potentially susceptible to school-based interventions there is significant potential for future research that springs from these findings. The research potential is enhanced because of the longitudinal and ongoing nature of the data collection by the TDSB.

Shortly, it will be possible to replicate this study but with greater numbers and more (and earlier) variables. There will be additional variables available on later cohorts of students. At that point, the construction of a weighted variable based on multiple elementary school indicators may provide more precise at-risk prediction, which could increase the efficacy of early interventions.

There is also significant potential for more focused studies which explore the issue in way that better supports causal claims. Currently, the long span of these cohort studies makes

hierarchical linear modelling, for example, by nesting students in schools, impossible due to multiple school changes over 13 years. With a larger data set, for example, it would be very interesting to examine the rate at which students access post-secondary after attending demographically matched elementary schools with low or high levels of suspension.

Implications for Policy

Implications for Equity and Human Rights

Perhaps unsurprisingly, all of the risk factors in this research which suggest lower odds that students will go onto PSE intersect significantly with issues of human rights and inequality at school. The risk factors identified here are not evenly distributed across the school population. Students who already face societal barriers – whether poverty, low parental education, racism and/or ableism – are far more likely to be affected by the major risk factors identified in this paper, raising issues of educational equity.

While equity has many meanings, at least one key aspect of it is to ensure students are not subject to direct or systemic discrimination, which are both prohibited under the *Ontario Human Rights Code*. Direct discrimination is where individuals are treated differently based on a category of identity – for example, not allowing children with certain categories of disability into the school system at all, or, underfunding education for a particular racial group (see e.g. Ellis, 2019; *First Nations Family and Child Caring Society v. Canada*, 2017). Systemic discrimination – which is also prohibited -- arises through routine institutional practices that may create barriers without any particular *intent* to discriminate – or even knowledge of discrimination. Race and disability are both protected grounds under the *Code*. Demographic data collection – such as that undertaken by the TDSB – is mandated by the Ontario Human Rights Commission as a pre-requisite to understanding and correcting patterns of systemic discrimination in education (Ontario Human Rights Commission, 2004, 2005, 2009).

With respect to both suspensions and self-contained special education, a human rights lens raises significant flags about ongoing patterns of systemic discrimination adversely affecting racialized students and students with disabilities. The Ontario Ministry of Education and the Toronto District School Board settled an important human rights case about the mandatory application of the *Safe Schools Act* in 2005 on the basis that zero-tolerance discipline had a prohibited impact on Black students and students with disabilities (Ontario Human Rights Commission, 2005). Even subsequent to that settlement, existing research in the Toronto District School Board has established that, for example, Black students are three times more likely to be suspended than White students (Zheng, 2013). The research in this paper dramatically illustrates the long-term, adverse impact for students arising from elementary suspensions; that this impact is disproportionately experienced by certain racial groups and that suspensions are a measure which can be significantly reduced through policy and practice changes should all raise serious alarm bells.

Self-contained special education settings are also a matter of human rights concern. In other studies, TDSB data has demonstrated that students who are racialized – as well as socio-economically disadvantaged -- are more likely to be placed in self-contained special education settings (Brown & Parekh, 2010) These are precisely the types of placement which is most negatively tied to students' access to PSE. Recent research has demonstrated a significant conflation between perceived ability and students' racial, class and gender identities (Parekh et al., 2018), which may explain, in part, how students who are racialized or from lower income households experience disproportionate placement within self-contained special education classes. As noted earlier, despite the notion that the placement of students in self-contained programs increases support, one-to-one

time with educators, and greater access to curriculum, empirical international evidence demonstrates that the opposite is true (Mitchell, 2010, 2015). Students in self-contained special education programs often experience lower expectations, less access to curriculum, and are further debilitated by a permanency in program placement that does not allow for the acquisition of requisite courses for PSE access (Mitchell, 2010, 2015). However well-intentioned, if the interventions which are intended to be integrated into specialized supports to students identified with Special Education Needs (e.g., small-group classes with tailored instruction) are contributing to adverse educational outcomes then the related policy needs to be reexamined through a human rights lens.

Beyond Testing – Measures of Success that Look to the Future

This research maps onto a growing body of literature that suggests much more is involved in post-secondary access and success than academic achievement in a few subjects, requiring policymakers to embrace a robust and multi-faceted, long-term definition of success. There remains significant research showing that achievement on standardized measures relates significantly to long-term academic and social outcomes (e.g., Schleicher, 2007). Yet since the 1970s, if not before, there has been a growing recognition of the potentially *greater* importance of “non-cognitive” competencies (self-awareness, self-management, social awareness, relationship skills and responsible decision making) as crucial not only to emotional development and well-being but also to academic and workforce success (see e.g., Bowles & Gintis, 1976; Duckworth & Seligman, 2005; Heckman et al., 2006; Heckman & Rubinstein, 2001). Both suspensions and absenteeism are indirect indicators of problems on this front – and powerful predictors of long-term challenges (see Ready, 2010 for discussion of the long-term effects of absenteeism). Given that research suggests that there are effective approaches to teaching and learning social-emotional skills at school (e.g., Durlak et al., 2011), this research underlines the importance of schools as places where students have a chance to learn and improve in these areas. Social emotional skills development at school has been described as ‘good for all, essential for some’ –many of the students identified in this study are the ones for whom it is ‘essential’.

Beyond Graduation – Raising the Bar

In light of the new reality of a majority-post-secondary pathway, and the significance of this pathway for student life outcomes, a focus on high school graduation reflects historical realities, but does not appear to reflect the present needs of an education system that prepares today’s students for the future. It is easy to forget that as recently as the mid-20th century, more than a third of students did not *enter* high school – only a fifth finished, and less than 5% of students entered university (Gidney, 1999, p. 289). Even over the past 20 years, the percentage of students graduating and going on to post-secondary has increased dramatically, from 69% of students in the 2000-2005 cohort to 86% of the 2012-2017 cohort (Brown & Tam, 2018). During this period of significant change, going on to PSE (college and university) went from being the minority option for students to the majority pathway, and has accordingly grown in significance for students’ long-term future. Understanding the factors which help prepare students for success in post-secondary is an increasingly critical need for the K-12 system. A new focus on post-secondary access as a key outcome of the K-12 system in Ontario was signaled by a major report, *Unlocking Student Potential through Data* (Quan, 2017) which identified the need to ensure schools have access to and use data about post-secondary outcomes of their students and to develop a stronger, system-wide research base on potential barriers to post-secondary access.

To try to assess the impact of opportunities or risks in the education system, we are required to find benchmarks against which we will assess success. For at least 20 years, test scores in a few subjects were the major measure against which educational interventions were judged. The push to

raise test scores led to a range of changes in ‘data-driven practice’ within schools – from literacy blocks to new math strategies. Longer-term, broader measures of success – such as graduation rates and particularly, entry to post-secondary – reflect a mix of academic and social skills, as well as societal advantages and/or barriers – that shape students’ long-term outcomes. The types of interventions that shape these outcomes point considerably beyond instruction to issues of school climate, positive relationships, school structures and high expectations. They may engage broader social institutions in providing required supports.

Conclusion

The analysis in this paper highlights the importance of thinking about long-term outcomes from the earliest years of the school system. Responding to the risk factors identified here represent challenging problems of practice. Yet practices and policies around attendance, suspension and special education disproportionately affect racialized students, students with disabilities, and others facing barriers, such as poverty and low education, and require urgent attention. Nonetheless, the changes noted above – where graduation and post-secondary have become the new norm over a relatively short historical period – suggest reasons for optimism and a potential for system change that goes beyond incremental boosts to test scores.

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