

Making Visible and Acting on Issues of Racism and Racialization in School Mathematics

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Abstract

Schools, as social systems, may knowingly or unintentionally perpetuate inequities through unchallenged oppressive systems. This paper focuses on mathematics as a subject area in school practices in which inequities seem to be considered normal. Issues of racism and racialization in the discipline of mathematics are predominantly lived through the practice of streaming where students are enrolled in courses of different levels of difficulty. Such practice denies marginalized groups of students the full benefit of rich learning experiences. These issues should be of concern for activists, advocates, and allies as well as individuals and groups who are systematically and directly affected. The purpose of this paper is to make visible issues of racism and racialization in school mathematics to a range of stakeholders that include: school administrators, teachers, students, parents, education advocates, academics, educational researchers, and politicians. The ultimate goal is that the knowledge gained through this call to action will contribute toward eliminating social injustice in all school systems, particularly as it relates to skin colour, country of origin, culture, language, customs, and religion.

Keywords: Marginalized students, racialization, racism, school mathematics, streaming, tracking

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One of the challenges of education systems is to put in place practices that align succinctly between policies, research, and educational theories. Although knowledge of sociocultural theories (Herbel-Eisenmann, Choppin, Wagner, & Pimm, 2011; Moschkovich, 2002) may inform policy on equity, there is a disconnect in the implementation of these ideals. Most policy documents position equity and the collective good as their ultimate purpose; however, actual implementation in school practices and programs can be very different from the stated policy intent. For instance, in *Achieving Excellence: A Renewed Vision for Education in Ontario*, the Ontario Ministry of Education (OME, 2014) cites “Ensuring Equity” as one of its renewed goals for education; by that, the OME means that “All children and students will be inspired to reach their full potential, with access to rich learning experiences that begin at birth and continue into adulthood” (p. 3). The extent to which this statement is aligned with students’ lived experiences in some program areas could be significantly different than intended. That is exactly why in 2017 the OME found the need to create the Education Equity Secretariat whose mandate includes the design and implementation of the Education Equity Action Plan to realize the goal of ensuring equity (OME, 2017, p. 9). This Action Plan acknowledges de facto racism and racialization in the school system. From the outset the plan is characterized as the “province’s roadmap to identifying and eliminating discriminatory practices, systemic barriers and bias from schools and classrooms to support the potential for all students to succeed” (OME, 2017, p. 4).

For far too many students, school mathematics is one subject area for which “rich learning experiences” and “inspiration to reach full potential” is currently a debatable issue (Organisation for Economic Co-operation and Development [OECD], 2016; Zevenbergen, 2002). The OECD’s *Equations and Inequalities: Making Mathematics Accessible to All* report argues that students with difficulties in mathematics and disadvantaged students stand to gain the most from highly qualified teachers, but unfortunately, they often are paired with the least-skilled teachers. Other school subjects are not necessarily immune, as Zevenbergen (2002) concedes: “While the implementation of streaming may be widespread, it appears to be more common in mathematics than most other curriculum areas” (p. 3). Only a small and select group of students may have been exposed to these two important ingredients leading to success in school mathematics. Recently published research argues that school mathematics remains a powerful social filter (Boaler, 2005; Herbel-Eisenmann et al, 2011). Other research flags streaming based on race, ethnicity, and social class as another filter for social mobility (Clandfield et al., 2014). These two filters constitute systemic racism that, according to the Government of Ontario’s (2017) *A Better Way Forward: Ontario’s 3-Year Anti-Racism Strategic Plan*, “is often caused by hidden and institutional biases in policies, practices and processes that privilege or disadvantage some people” (p. 10) or groups based on socio- and ethnographic traits.

Call for Action

The purpose of this paper is twofold: To make visible, and to call education stakeholders to action regarding issues of, racism and racialization specifically in school mathematics. The term “racialization” utilized in Ontario’s *Anti-Racism Strategic Plan* draws from the 1995 *Commission on Systemic Racism in the Ontario Criminal Justice System* and refers to racialization as “the process by which societies construct races as real, different and unequal in ways that matter to economic, political and social life” (Government of Ontario, 2017, p. 11). I

argue that a first step in making the issue of racialization visible is exposure to racial inequities. I discuss a school board report that makes such connections clear (Yau, O'Reilly, Rosolen, & Archer, 2011). Further evidence is provided by other researchers (James & Turner, 2017; Parekh, 2013). These issues present as ethical dilemmas that people in all educational settings must deal with on a constant basis. Shapiro and Stefkovich's (2016) Multiple Ethical Paradigm approach constitutes a great model to assist in the analysis of such dilemmas. The paradigms include the ethics of justice, critique, care, and the profession. The *ethic of justice* deals with rights and laws and frequently serves as foundation for legal principles and ideals (Shapiro & Stefkovich, 2016). Many scholars (e.g., Apple, 2000, 2006; Bowles & Gintis, 1988; Giroux, 2013, 2015) are not convinced by the arguments put forward by the proponents of the justice paradigm. These scholars point to tensions between the ethic of justice, rights, and laws on the one hand and democratic ideals on the other. They also find inconsistencies between the laws themselves and the processes used to determine if the laws are truly just. Rather than accepting the ethic of those in power, scholars for the *ethic of critique* are inspired by critical theorists (e.g., Apple, 2000, 2006; Bowles & Gintis, 1988; Giroux, 2013, 2015) who push for the redefinition of concepts such as privilege, power, and justice. Their work is mainly based on the analysis of social class and its inequities. Generally, these critics are also activists who believe that discourse alone is not enough and must be supplemented by some kind of action, preferably political (Shapiro & Stefkovich, 2016). For those advocating for the third paradigm—the *ethic of care* (Gilligan, 1982; Noddings, 1992, 2012)—students are at the heart of every education system and they should be nurtured and encouraged. These researchers recognize the need for relationships and connections that are essential in education. Shapiro and Stefkovich (2016) see the fourth perspective, the *ethic of the profession*, as an independent model that can stand alone to deal with “formal codes of the profession and the standards of the field” (p. 7).

In an effort to be brief, this paper will consider only the *ethic of care* and the *ethic of critique* to provide some theoretical underpinning. Additionally, this choice is justified by the fact that the *ethic of justice* is seen as operationalized, in its legal sense, by those in power and the status quo while the *ethic of the profession* is often considered to be the extension of another paradigm. Academic streaming may take multiple forms. Sometimes it is through the use of human and material resources between different schools or different types of programs within schools. It could also be through differential treatment of students within classrooms or the whole school. For example, at the elementary level, in cases where there is more than one group of a certain grade, it is common to find that one group is more privileged than the other (Lleras & Rangel, 2008). That may well be because of personal characteristics of individual teachers, but it could also be due to intentional disparity of resource allocation among classes. At the high school level, for some identical course code, students may be grouped based on: behaviour, learning disabilities, demographic characteristics, or perceived socioeconomic status in addition to teachers' various qualification levels and experience (Kinnon, 2016). The following sections will pinpoint some of the problems in school mathematics as it relates to streaming. A brief overview of some of policies in place to substantiate streaming is presented, followed by the unveiling of some discriminatory practices in school mathematics. After identifying some social and opportunity gaps, the next two sections make a call for action through discussions and considerations.

The Problem

In the area of school mathematics, many people who observe a school classroom might question the claim that “all children and students will be inspired to reach their full potential.” In the same vein, the notion of “access to rich learning experiences” could be somewhat contradictory given that rich learning experiences are not generally the prerogative of poor schools in disadvantaged urban neighbourhoods or some rural communities (see, for example, Khattri, Riley, & Kane, 1997; Kohen, Leventhal, Dahinten, & McIntosh, 2008). And that is regrettable when it is well documented that “disadvantaged ... environments are powerful predictors of adult failure on a number of social and economic measures” (Heckman, 2006, pp. 1900-1901).

The unfortunate reality in school mathematics is that there are some marginalized groups of students who are not at all inspired to reach their full potential either by what they see, what they hear from school personnel, or by the way their courses are selected in the first place. By marginalized or minoritized, this essay refers to all racialized groups defined as non-aboriginal people of colour, also referred to by Statistics Canada and in the Federal Employment Equity Act as visible minorities (Galabuzi, 2001). It is however important to acknowledge at the same time that not all people of colour are marginalized or feel minoritized. For example, this statement is true in the context of the United States where African American students are at a disadvantage as compared to their Caucasian and Asian peers when it comes to access to rich learning experiences in mathematics (Gutiérrez 2008; Lubienski & Gutiérrez 2008). In Ontario, there is evidence to suggest that certain minority groups are overrepresented in mathematics courses or classrooms in which rich learning experiences are rather rare or inexistent (James & Turner, 2017; Parekh, 2013). Such practice is generally known in the literature as streaming, which is a process of grouping students by their ability according to academic performance, educational needs, perceived postsecondary pathways, and any other tacit attributes. This practice is also known as tracking or grouping by ability (OECD, 2012).

In the Ontario context, it is important to understand or be reminded that in grade 8, all students must select between applied and academic courses for their grade 9 school journey. These pre-teens assisted by their guidance counsellors and their parents or tutors are to make decisions that will affect their postsecondary and potentially future career options. Any misstep, act of bad faith, or ignorance may lead to life-long consequences for the student in question. According to the OME's (1999) *Ontario Secondary Schools, Grades 9–12: Program and Diploma Requirements* policy document, this system of applied and academic courses was introduced by the OME in 1999 for grades 9 and 10. The policy states that academic courses emphasize theory and abstract problems while applied courses focus on practical applications and concrete examples (p. 14). The original intention of the policy was to end streaming in Ontario schools and offer more options for all students, given these grade 9 and 10 courses are prerequisites for a range of “destination-based” courses in grades 11 and 12. Over the course of its existence, some argue that this policy offers the ground for some discriminatory practices through streaming (Clandfield et al., 2014). Some racial groups have been proven to be more affected than others. For instance, according to a report by Yau et al. (2011) for the Toronto District School Board (TDSB), it has been observed that:

Compared to the overall population, fewer Black students meet or exceed the provincial standard (Level 3) on Gr. 6 Education Quality and Accountability Office (EQAO) tests

for Reading and Writing, and even fewer meet the standard on the EQAO Mathematics test; also, fewer pass the Gr. 10 Ontario Secondary School Literacy Test (OSSLT). (p. 6) The report goes on to highlight that students whose parents are from the Caribbean, East Africa, and West Africa are less likely to feel positive about school rules or to sense that their background is valued and respected by school staff. Yau et al. (2011) conclude that “except for math, all three groups are as or more confident about their abilities; however, academically, all three groups generally do not fare as well as the overall population” (p. 6).

In addition to the above disturbing statistics, self-identified Black students in the TDSB, the largest school board in Canada and one of the largest in North America, are more likely to be overrepresented in intensive support and limited academic schools. Within this board, Parekh (2013) investigated school-wide structures at the secondary school level and found that there were in addition to mainstream schools, specialty arts schools, alternative schools, special education schools, and schools that offer limited academic and university preparedness courses. TDSB’s Specialized Arts schools offer prestigious programming and students are only admitted to them through a very competitive application and/or audition process. In the board’s Alternative schools, students and parents are promised something different from mainstream schooling with a unique and a distinct identity and approach to curriculum delivery. Special Education schools refer to Intensive Support sites with students identified as having Special Education Needs. Lastly, TDSB’s Limited Academic schools are institutions where academic or university preparedness level courses are not offered or the numbers are too few to justify postsecondary education pathways at the University level. Parekh (2013) noticed in his investigation of this board’s school structure that:

Self-identified Black students are the largest racial category represented in Special Education schools (30.2%) and are over triply represented. Self-identified Black students are also over-represented in schools with Limited Academic opportunities (19.3%), but are under-represented in both Alternative schools (10.4%) and ... Specialty Arts schools (3.2%). (p. 7)

Schools, as social systems, may knowingly or unintentionally perpetuate inequity through unchallenged oppressive systems. One area in school practices where inequities seem to be considered normal is in mathematics. Herbel-Eisenmann et al. (2011) contend that “school mathematics remains a powerful social filter, and understanding and explaining access to and success in school mathematics has been of considerable interest to the research community for some time now” (p. v). Though it is generally known and accepted that more academic and career pathways are open to students who do well in mathematics, tracking or streaming precludes predominantly minority students from courses leading to mathematics-related fields such as engineering, programming, and other hard sciences. Such practice leads to racial and socioeconomic segregation often associated with inequities in educational resources, teacher qualifications, and class size (da Silva, Huguley, Kakli, & Rao, 2007). Because of these inequitable factors pertaining to human and material resources, learning opportunities are then most of the time limited for disadvantaged students in less challenging tracks (Parekh, 2013). Noddings (2012) refers to this situation as the soft bigotry of low expectations.

In the TDSB’s *Structured Pathways* (Parekh, 2013), a rather bleak picture is drawn of the equity situation when it comes to streaming. Even though the applied pathway is generally presented to parents and students as an acceptable alternative to university, TDSB data indicates that only 10.9% of students who took the majority of their courses in the applied stream confirm

an admission offer to college after graduating. Of that same group, an additional 4.2% confirmed an admission to an Ontario University for a total of 15.1%, while a surprising 79.3% of them did not apply for postsecondary education at all (Parekh, 2013). In mathematics, in general, it is imperative to question discriminatory practices that promote inequities among different groups of students. It is no longer acceptable that students are treated as second-class citizens based on their mathematics course selections. If equal opportunities are to be provided to all children in Ontario schools, for instance, notwithstanding their ethnic background, it becomes a moral obligation not to segregate.

The National Council of Teachers of Mathematics (NCTM) recognizes that success in mathematics is mostly about opportunity. Streaming precludes some students from the opportunity to enjoy the benefit of high-quality mathematics. In its 2012 position statement, the NCTM made it clear that:

All students should have the opportunity to receive high-quality mathematics instruction, learn challenging grade-level content, and receive the support necessary to be successful. Much of what has been typically referred to as the ‘achievement gap’ in mathematics is a function of differential instructional opportunities. Differential access to high-quality teachers, instructional opportunities to learn high-quality mathematics, opportunities to learn grade-level mathematics content, and high expectations for mathematics achievement are the main contributors to differential learning outcomes among individuals and groups of students. (p. 1)

The problem of having marginalized students not well represented in high-quality mathematics (Munter, 2014) classrooms is not new. Researchers all over the world have investigated the links between academic streaming and socioeconomic status for years. According to Kinnon (2016), Canadian and English scholars usually refer to this practice as “streaming,” whereas their American counterparts choose “tracking” to refer to the same practice. Gamoran and Mare (1989) argue that “track assignment reinforces pre-existing inequalities in achievements among students from different socioeconomic backgrounds” (p. 1146). Jo Boaler (2005), another well-known scholar in the mathematics education world, writes extensively on academic streaming and recognizes that the research into streaming has consistently yielded high correlations between social class and streaming “with social class working as a subtle filter that results in the over-representation of working class children in low groups” (p. 137). Kinnon’s (2016) extensive literature review on the subject revealed that researchers from different countries (e.g., Germany, Japan, Denmark, and Israel) agree that streaming tends to strengthen or maintain “preexisting socioeconomic inequalities in educational outcomes” (p. 24). It is imperative that government and different stakeholders examine who has a leading role to play in eliminating racism and racialization in school mathematics and ensuring students benefit equally from educational policies, programs, and services. The following section presents a brief overview of educational policies that inform our understanding of racism in school mathematics.

Policies in Place Against or For Racism

Issues of racism and racialization in school mathematics are complex and go back to very distant pasts. They do not happen in isolation and other school subject areas are not exempted of such problems. They are deep-seated in different aspects and levels of education systems as well

as in society as a whole. Clandfield et al. (2014) argue that “racialization should be seen as an act of social construction that seeks to maintain the dominance of the White power structure that uses the ideology of meritocracy to maintain the dominant order in education and society, consistent with the current hierarchy of globalizing capitalism” (p. 6). I would argue that education systems generally emulate the power structures and social constructs that perpetuate discrimination in society. I have experienced tacit processes in place that deny some students the opportunities of rich learning experiences. In the context of the Ontario education system, a case can be made that in applied mathematics classrooms, the “processes of racialization and colonization are mobilized to enable the practice of streaming, and how it manifests within schools and across the education system to deny Aboriginal and racialized students the full benefit of the learning experience” (Clandfield et al., 2014, p. 8).

One may argue that there is no policy in place that enables racism or inequities in Ontario. In Kinnon’s (2016) view, “academic streaming is a policy of formally grouping students based on their current academic ability and, in the case of Ontario, also by their supposed academic destination, be that university, college, or the workplace” (p. 17). Clandfield et al.’s (2014) seminal work *Restacking the Deck: Streaming by Class, Race and Gender in Ontario Schools* notes that “these conditions continue to represent both a severe social injustice and a tremendous waste of human learning potential, particularly in light of the increasingly widespread view that advanced formal education is an essential ingredient for the future wellbeing of our society” (p. 2). Issues of equity, racism, and race relations seem to be most of the time at the heart of any conversation pertaining to streaming. Gillborn (2005) reminds us that

As several studies have shown, over the last half-century issues of racism, “race relations” and “race” equity have featured differently in education policy. From early post-War ignorance and neglect (Lynch 1986), through periods of overt assimilationist and integrationist policies (Mullard 1982; Tomlinson 1977), it has been clear that, although the particular measures meant to address ethnic diversity have changed from time to time, one constant feature has been a place on the margins of education policy. (p. 13)

Often, there is a disparity between identified goals of educational policies and programs and the implementation of strategies and practices to reach such goals. On the one hand, there may be some disconnection between actual available resources to realize those goals and the real needs of school communities. On the other hand, sufficient resources may be available but people’s philosophies and biases diverge away from educational policies original intent. To that point, Gillborn (2005) argues that while “race inequity may not be a planned and deliberate goal of education policy neither is it accidental” (p. 2).

There are forces at play that tend to maintain the dominant Eurocentric knowledge systems and orders of life. Gillborn (2005) continues his argument admitting that “the patterning of racial advantage and inequity is structured in domination and its continuation represents a form of tacit intentionality on the part of white powerholders and policy makers” (p. 2). Gillborn’s statement is coherent with literature on the intentionality of White supremacy, Whiteness, and White privilege (Solomona, Portelli, Daniel, & Campbell, 2005). This is very fitting since this paper originated from the first *White Privilege Symposium* in Canada that took place at Brock University on September 30 and October 1, 2016. The theme of “tacit intentionality on the part of white powerholders and policy makers” is also coherent with McIntosh’s (1998) view on White privilege as:

an invisible package of unearned assets which I can count on cashing in each day, but about which I was “meant” to remain oblivious. White privilege is like an invisible weightless knapsack of special provisions, maps, passports, codebooks, visas, clothes, tools, and blank checks. (p. 74)

One of the corollary aspects of streaming is putting some people at an advantage based on unearned status and skin colour while denying the privilege to others and trying not to acknowledge the others’ non-privilege. While these sensitive issues are difficult to talk about and may make some people uncomfortable, they ought to be brought forth in conversations related to racialization in school mathematics whether by the government or the school community at large.

A government’s duties are sometimes thought to be narrowly limited to the vital tasks of protecting its citizens’ rights to freedom, liberty, justice, and prosperity. In some political discussions and debates, the role of government may be seen as a lever to influence, modify, or dictate the conduct of its citizenry. In addition to that, one might argue that governments are supposed to be the guarantors of the most vulnerable, the marginalized, and the defenceless. People’s trust in public institutions can be impacted by their sense of whether these institutions have policies that recognize and proactively respond to discrimination and prejudice. This role of government can be easily connected to what is happening in school mathematics.

In Ontario, many voices have been advocating for change in the education system. Among them are the voices of Curtis, Livingstone, and Smaller (1992) in their groundbreaking work *Stacking the Deck*, and Clandfield et al.’s (2014) update of that same work, *Restacking the Deck*. Clandfield et al. unequivocally contend that, “from its origins in the middle of the 19th century, public education in Ontario has worked to ensure that the majority of working-class people will remain in their class of origin, while recruiting a small and select minority of them for social mobility” (2014, p. 2). Such observation supports critical theorists’ arguments that schools reproduce inequities similar to those in society (Bourdieu, 1977, 2001; Lareau, 1987, 2003). As mentioned earlier, the *ethic of critique* (Shapiro & Stefkovich, 2016) pushes for the redefinition of concepts such as privilege, power, and justice. It is mainly concerned with the analysis of social class and its inequities. From an *ethic of critique* perspective, tracking or streaming maintain working-class children in their place (Oakes, 1993, 2005). It is legitimate to wonder how current practices in school mathematics are the remains of discriminatory or racist ways of doing education that have not been challenged. These practices may have been in place for so long that they have become the norms that are generally accepted by all parties involved.

(In)equity in School Mathematics Practices

There are tremendous misconceptions about equity in education. Equity is not the same as equality. Equity means that each and every student has what he or she needs to be successful in his or her learning. According to the OECD (2012), “equity in education means that personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to achieving educational potential (fairness)” (p. 3). Many teachers mistakenly think that being fair to their students requires that they give their students the same resources and means to be successful (equality). This understanding of equity principles is limited at best. In its 2014 position on *Access and Equity in Mathematics Education*, the NCTM argues that practices to support access and equity require comprehensive understanding and they include, but are not

limited to, holding high expectations, ensuring access to high-quality mathematics curriculum and instruction for all students, allowing adequate time for students to learn, placing appropriate emphasis on differentiated processes that broaden students' productive engagement with mathematics, and making strategic use of human and material resources.

This position, although taken by an American teachers' association, translates well with what should be equitable practices in any mathematics classroom, be it in Ontario or elsewhere. It is worth noticing that the NCTM's position does not focus on the amount or the distribution of material resources. Instead, the emphasis is on the strategic use of human capital and material resources. This position paints a vivid picture of what ultimately motivates all equity advocates and allies in pursuing social justice. The fact alone that resources are available does not guarantee equitable use. In the same statement, the NCTM (2012) defends that "when access and equity have been successfully addressed, student outcomes—including achievement on a range of mathematics assessments, disposition toward mathematics, and persistence in the mathematics pipeline—transcend, and cannot be predicted by students' racial, ethnic, linguistic, gender, and socioeconomic backgrounds" (p. 1). This conclusion is different than what is experienced in most mathematics classrooms in Ontario based on the work of Clandfield et al. (2014), Kinnon (2016), and Riegle-Crumb and Grodsky (2010).

The original intention of educational policy laid out in the OME's (1999) *Ontario Secondary Schools, Grades 9–12: Program and Diploma Requirements* was to end streaming in Ontario schools and offer more options for all students. In reality, however, most students in applied courses predominantly from racially and ethnically diverse groups (Parekh, 2013) are still subject to differential treatment. Ruck and Wortley (2002) concur that "Canadian research suggests that minority students, especially Black students, are more likely to be enrolled in basic and general levels of academic programs and show disproportionately higher levels of school dropout than do other students" (p. 185). Most experienced high school teachers and more and more research on streaming recognize that students in the applied stream generally have access to less qualified teachers and are mostly exposed to less rich learning experiences (Clandfield et al., 2014; People for Education, 2015). In the same report, the advocacy group contends that "these course selections largely determine students' educational pathways throughout high school, and typically influence postsecondary options and career opportunities" (People for Education, 2015, p. 27). For students and parents who may be ill-informed or misguided, one can understand how problematic their course choices could be if they fail to see the connections with postsecondary destinations. Their situation is even more problematic as data shows that most students in applied mathematics enroll in more than two other applied courses. The 2015 People for Education report indicates that in 2014, "62 percent of students taking applied math were taking three or more applied courses, and that only 11 percent of students in applied math take no other applied courses. Students are, in effect, grouped into separate tracks" (p. 27). This form of grouping lends itself very well to discriminatory practices that exist in school mathematics as will be elaborated upon in the following section.

Many studies have looked at the association between applied courses and low-income students (Anisef, Brown, & Sweet, 2011; Clandfield et al., 2014; OECD, 2012). Whether it is in the United States, England, Canada, or elsewhere, the results seem to converge toward the same conclusion that streaming is connected to systemic inequalities. For example, most studies in Ontario on the topic agree that the applied/academic streaming system in Ontario schools work to perpetuate current socioeconomic and educational disparities among different groups and

ethnicities. Researchers such as Parekh, Killoran, and Crawford (2011) have found a clear connection between socioeconomic status and academic streaming. People for Education (2013a, 2014, 2015), a very active education advocacy group in Ontario, has also pointed to this correlation repeatedly in its annual reports. This organization has raised a red flag on the fact that there is a strong tie between family income and taking applied courses. People for Education (2013a, 2013b, 2014, 2015) has been very vocal and critical of the Ontario system of academic streaming not only in many of its annual reports but also in its various public statements in the national press and on social media.

According to Clandfield et al. (2014) and based on People for Education's reports, analysis of the Education Quality and Accountability Office (EQAQO) demographic data, along with the 2006 Statistics Canada Census data, shows that schools with higher percentages of students from low-income families also have higher proportions of students in applied mathematics in Ontario. In the same vein, the 2015 People for Education report highlights that a recent study from the TDSB found that only 6% of students from the highest income neighbourhoods took the majority of their courses as applied courses, compared to 33% of students from the lowest income neighbourhoods (p. 27). In TDSB's *Structured Pathways*, Parekh (2013) reports that only 8.8% of the 12.6% of self-identified Black students across the secondary school panel in TDSB take the majority of their courses in the academic program of study (p. 3). These results are clearly an indication of social justice issues that urgently need to be addressed.

Social and Opportunity Gaps

Whenever the word "gap" is mentioned in education literature, people tend to refer to the *achievement* gap. This is even more evident in literature stemming from the United States where achievement gap between different ethnic groups remains a significant and current research theme of great interest (Ladson-Billings, 2006; Riegle-Crumb & Grodsky, 2010). It may be argued that the resulting social and opportunity gaps from streaming are even more concerning. Educational gaps generally lead to less promising employment opportunities for minority and racialized groups. When at all employed, they are generally underemployed and are the most subjected to the tacit rule of last hired, first fired (Blair & Fichtenbaum, 2012).

More Canadian research and data are needed to better understand the historical patterns of systemic discrimination towards racial groups. Nonetheless, it is not a coincidence that there is over-representation of these marginalized segments of Canadian society, particularly Blacks and Indigenous people, in penitentiary institutions (Reasons et al., 2016; Roberts & Doob, 1997). They also are more likely to be over-represented in more labour-intensive, low paying occupations, and low income sectors (Galabuzi, 2001; Nakhaie, 2006). One can argue that the systemic reproduction of marginality is reflected in the over-representation of minority groups in activities involving the sub-economy, such as illicit dealing and prostitution, as identified by researchers in the United States (Clarke, Clarke, Roe-Sepowitz, & Fey, 2012; Kramer & Berg, 2003). One may contend that it is a vicious cycle of economic disenfranchisement. To that point, Riegle-Crumb and Grodsky (2010) argue that "social class differences in students' families account for a substantial portion of the achievement gap between majority and minority youth, as African American and Hispanic parents have historically had lower levels of education, occupational status, and income compared to Whites" (p. 251). In addition, Galabuzi's (2001) work

points to the role of historical patterns of systemic racial discrimination as key to understanding the persistent overrepresentation of racialised groups in low paying occupations and low income sectors, their higher unemployment, and their poverty and social marginalisation. Historical patterns of differential treatment and occupational segregation in the labour market, and discriminatory governmental and institutional policies and practices, have led to the reproduction of racial inequality in other areas of Canadian life. (p. 3)

The social and opportunity gaps seem to be viscerally entrenched in systemic discriminatory societal norms that are at play in education systems around the world. Who are benefiting from these gaps? Why do they seem to linger persistently even though there is a great deal of consensus that changes are required? Part of the answer seems to be provided by Clandfield et al. (2014), who contend that “The responsiveness of public education to the interests of the business community and of the upper middle class has ensured the existence of discriminatory patterns of schooling, from system-wide policy planning to the making of local classroom decisions” (p. 3). The recurring question of the purpose of schooling then comes back to the table. It is worth wondering whether Ontario school systems are preparing students “to become personally successful, economically productive and actively engaged citizens” (OME, 2017, p. 4) or responding to the interests of a certain business community by supplying lowly paid labour that ultimately benefits the wealthiest class in society.

Streaming in school mathematics is an unethical practice. School leaders cannot close their eyes on practices affecting marginalized segments of the student population. To do so is clearly unethical. They should not, in any case, emulate Aristotle who did not see the evils of slavery. It is unethical to justify injustice and inequity on the basis of social constructs and master narratives that “present contrasts between groups of people by advantaging dominant groups and disadvantaging members of marginal groups such as women and people of color” (Berry, Thunder, & McClain, 2011, p. 11). There is something wrong in any society in which a student can be denied an opportunity to take a high-level mathematics course, for example, because of his or her ethnic backgrounds or social status. It is equally wrong when students can be in a mathematics course and yet presuppositions place them in a deficit predicament based solely on racist assumptions. Educators need to recognize that “one does not need an absolute principle to urge moral change, and one does not have to accept practices that induce pain and humiliation just because they are judged right by another group of beings” (Noddings, 2012, p. 155).

The Way Out

The issues of discrimination in school mathematics are not recent nor are they only problematic in Ontario schools. James and Turner (2017) recognized that “for at least 30 years, the provincial government has been aware of and has tried in various ways to address unequal educational outcomes” (p. 6). According to Clandfield et al. (2014), public sentiment against early streaming was very well present in the 1980s. The Ontario Federation of Labour, several local parents’ groups, and the New Democratic Party (NDP) all advocated for the elimination of streaming. Clandfield et al. (2014) add that “In the early 1990s, the political conditions for progressive educational change were relatively open, despite the mobilization of the business community against such attempts at reducing social inequality” (p. 3). In recent years, the education advocacy group People for Education has been very vocal about delaying streaming,

arguing that the idea of keeping “options open for all students” is not a reality yet in Ontario. In its 2015 report, the People for Education claimed that “forcing students as young as 13 years old to choose between two paths through school closes many options” and “may disadvantage our most vulnerable students” (p. 28). People for Education’s recurring recommendation is to delay course selections to the end of students’ secondary school journey.

The OECD’s (2012) *Equity and Quality in Education: Supporting Disadvantaged Students and Schools* report acknowledges that the best education systems across OECD countries are those that understand the need to combine quality with equity. In school systems where equity is a priority, socio-ethnographic traits or family background should not be obstacles to reaching educational potential. The OECD (2012) concedes that eliminating systemic obstacles to equity in schools will not only improve equity but also will benefit disadvantaged students, without hindering their peers’ improvement. Regarding streaming, the OECD unequivocally recommends avoiding early streaming and delaying student selection to later years in secondary schools. The report concludes that “early student selection has a negative impact on students assigned to lower tracks and exacerbates inequities, without raising average performance” (OECD, 2012, p. 10). Delaying students’ choice to be enrolled in academic or applied courses to a later point in their secondary school journey could be a good start. However, this alone will not solve discriminatory streaming in any school system.

It is time to try to implement at a systemic level some alternative and non-streamed approaches within school systems. Many marginalized, racialized, and minority groups of students could benefit from de-streaming and mixed-ability grouping. Compassionate, ethical, and transformational leadership is what seems to be required from those in charge of school systems as a precursor for the elimination of discriminatory streaming and other forms of social injustice. To that end, Parker and Shapiro (1993) argued that “one way to rectify some wrongs in schools and in society would be to give more attention to the analysis of social class in the preparations of principals and superintendents” (as cited in Shapiro & Stefkovich, 2016, pp. 14-15). Additionally, the OECD (2012, pp. 11-12) puts forth five key recommendations to support disadvantaged schools and students in their improvement journey:

- Strengthen and support school leadership;
- Stimulate a supportive school climate and environment for learning;
- Attract, support and retain high quality teachers;
- Ensure effective classroom learning strategies; and,
- Prioritize linking schools with parents and communities.

As mentioned earlier, deferring streaming represents a good start and an option that is not too threatening for those in favour of tracking. However, school systems need to be challenged to look at eliminating streaming altogether in schools. By doing so and strategically rethinking postsecondary options, students have a better chance of choosing career paths that may lead to a more successful future. In parallel, education systems need to focus more on educating teachers on unconscious biases and privilege (Solomona et al., 2005).

Discussion and Considerations

Issues of racism and racialization in school mathematics are not for activists, advocates, allies, and those who are systematically and directly affected. Rather, many education system stakeholders are in some way or the other called upon to address or take position against these

issues. For that reason, this paper is written in the hope it will reach an audience as wide as possible including school administrators, teachers, students, parents, education advocates, academics, educational researchers, and politicians. The desirable ultimate purpose is that these stakeholders are more conscious and knowledgeable about long-lasting consequences of streaming. Ultimately, as Mackenzie and Knife (2006) argue, the hope is that they would adhere to the principle that “all knowledge is political and that research should be aimed at eliminating social injustice, particularly related to ethnicity, gender, sexual orientation, disability and other marginalized groups” (as cited in Savin-Baden & Howell Major, 2013, p. 60).

Several challenging questions remain unresolved from an *ethic of critique* standpoint. For instance, whose responsibility is it to change the status quo? Are children of the marginalized predestined to reproduce children who are in turn marginalized? Aren't there inconsistencies between the Ontario government's assertion that “All children and students will be inspired to reach their full potential, with access to rich learning experiences that begin at birth and continue into adulthood” on the one hand and the streaming in school mathematics on the other? Satisfying answers need to be found very quickly as schools become more and more racially and culturally diverse (Khalifa, Gooden, & Davis, 2016). Also, in an increasingly competitive world, denying some students access to high-quality mathematics or other core programming based solely on race and some other superficial demographic factors limits the pool of talents from which some sectors could indeed benefit. According to the OECD (2012), the economic and social costs of students failing and dropping out of school are just too high, whereas successful completion of at least high school education provides individuals with better employment and healthier lifestyle prospects resulting in greater contributions to public budgets and investment.

It is well known and accepted that “more educated people contribute to more democratic societies and sustainable economies, and are less dependent on public aid and less vulnerable to economic downturns” (OECD, 2012, p. 9). It is worth asking to what extent training for school administrators and guidance counsellors cover grounds pertaining to successful societies and sustainable economies. It comes down to the purpose of schooling. And whatever that purpose is or whatever is agreed upon, parents and students should be well informed.

Conclusion

In the spirit of an *ethic of care* and an *ethic of critique*, this article sought to question and challenge ideas, practices, policies, programs, and individuals in power. The intent was to determine whose best interests are served by these ideas, practices, policies, programs, and individuals in power and whether they are truly just. It also sought not only to send out alarm signals but also call to action school administrators, teachers, students, parents, education advocates, academics, educational researchers, and politicians. Ultimately, the hope is that this call to action helps to eradicate some inequities in our society, and in particular, in school mathematics.

Streaming remains problematic in school mathematics in Ontario. There is evidence in the literature reviewed for the article and in the data from one of the largest and most diverse school boards in Canada (the TDSB) that most marginalized students are not inspired to reach their full potential in mathematics with access to rich learning experiences (see James & Turner, 2017). There are major inconsistencies between the goal of “Ensuring Equity” and the implementation of educational policies favouring streaming or tracking. There is a pressing need to eliminate

racism and racialization through streaming in school mathematics and to ensure that students benefit equitably from educational policies, programs, and services. As is evident from this article, there remains much to be done in this area of equity in school mathematics in Ontario, and even more broadly so in Canada.

Streaming provides the ground to deny some students the privilege of reaching their full potential. Most research in Ontario on this topic concurs that the applied/academic streaming system in Ontario schools works to perpetuate current socioeconomic and educational disparities among different groups and ethnicities. Through the lenses of an *ethic of care* and an *ethic of critique*, this paper stresses the need to address both perceived and real discrimination in education systems. Practically, in addition to changing streaming policies, urgent training for grade 8 teachers, high school guidance counsellors, and administrators on the negative consequences of streaming could be an excellent way to start providing adequate counselling to students and their parents and tutors. The just-released *Education Equity Action Plan* (OME, 2017) and *A Better Way Forward: Ontario's 3-Year Anti-Racism Strategic Plan* (Government of Ontario, 2017) provide a framework and opportunities to address most of the issues of racism and racialization raised in this paper. However, based on James and Turner's (2017) detailed account of more than 30 years of provincial initiatives regarding racism and race relations, the end of the tunnel may not be that near.

References

- Anisef, P., Brown, R. S., & Sweet, R. (2011, Winter). Post-secondary pathway choices of immigrant and native-born youth in Toronto. *Canadian Issues*, 42-48.
- Apple, M. W. (2000). *Official knowledge* (2nd ed.). New York, NY: Routledge.
- Apple, M. W. (2006). *Educating the "right" way: Markets, standards, God, and inequality*. New York, NY: Routledge.
- Berry, R. Q., III, Thunder, K., & McClain, O. L. (2011). Counter narratives: Examining the mathematics and racial identities of Black boys who are successful with school mathematics. *Journal of African American Males in Education*, 2(1), 10-23.
- Blair, J., & Fichtenbaum, R. (1992). Changing Black employment patterns. In G. C. Galster & E. W. Hill (Eds.), *The metropolis in black and white: Place, power, and polarization* (pp. 72-92). New Brunswick, NJ: Center for Urban Policy Research.
- Boaler, J. (2005). The "psychological prisons" from which they never escaped: The role of ability grouping in reproducing social class inequalities. *FORUM*, 47(2-3), 135-144. doi:10.2304/forum.2005.47.2.2
- Bourdieu, P. (1977). Cultural reproduction and social reproduction. In J. Karabel & A. H. Halsey (Eds.), *Power and ideology in education* (pp. 487-511). New York, NY: Oxford University Press.
- Bourdieu, P. (2001). *Masculine domination*. Stanford, CA: Stanford University Press.
- Bowles, S., & Gintis, H. (1988). *Democracy and capitalism: Property, community, and the contradictions of modern social thought*. New York, NY: Basic Books.
- Clandfield, D., Curtis, B., Galabuzi, G., San Vicente, A., Livingstone, D.W., & Smaller, H. (Eds.). (2014). *Restacking the deck: Streaming by class, gender and race in Ontario schools*. Ottawa, ON: Canadian Centre for Policy Alternatives.
- Clarke, R. J., Clarke, E. A., Roe-Sepowitz, D., & Fey, R. (2012). Age at entry into prostitution: Relationship to drug use, race, suicide, education level, childhood abuse, and family experiences. *Journal of Human Behavior in the Social Environment*, 22(3), 270-289. doi:10.1080/10911359.2012.655583
- Curtis, B., Livingstone, D. W., & Smaller, H. (1992). *Stacking the deck: The streaming of working-class kids in Ontario schools*. Toronto, ON: Our Schools/Our Selves.
- da Silva, C. D., Huguley, J. P., Kakli, Z., & Rao, R. (2007). *The opportunity gap: Achievement and inequality in education*. Cambridge, MA: Harvard Educational Press.
- Galabuzi, G. E. (2001). *Canada's creeping economic apartheid*. Toronto, ON: CSJ Foundation for Research and Education.
- Gamoran, A., & Mare, R. D. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? *American Journal of Sociology*, 94(5), 1146-1183. doi:10.1086/229114
- Gillborn, D. (2005). Education policy as an act of white supremacy: Whiteness, critical race theory and education reform. *Journal of Education Policy*, 20(4), 485-505. doi:10.1080/02680930500132346
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.
- Giroux, H. A. (2013). *Disposable youth: Racialized memories, and the culture of cruelty*. New York, NY: Routledge.

- Giroux, H. A. (2015). *Youth in revolt: Reclaiming a democratic future*. New York, NY: Routledge.
- Government of Ontario. (2017). *A better way forward: Ontario's 3-year anti-racism strategic plan*. Retrieved from https://files.ontario.ca/ar-2001_ard_report_tagged_final-s.pdf
- Gutiérrez, R. (2008). A “gap gazing” fetish in mathematics education? Problematizing research on the achievement gap. *Journal for Research in Mathematics Education*, 39(4), 357-364.
- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science*, 312(5782), 1900-1902. doi:10.1126/science.1128898
- Herbel-Eisenmann, B., Choppin, J., Wagner, D., & Pimm, D. (Eds.). (2011). *Equity in discourse for mathematics education: Theories, practices, and policies*. Dordrecht, Netherlands: Springer.
- James, C. E., & Turner, T. (2017). *Towards race equity in education: The schooling of Black students in the Greater Toronto Area*. Toronto, ON: York University.
- Khalifa, M. A., Gooden, M. A., & Davis, J. E. (2016). Culturally responsive school leadership: A synthesis of the literature. *Review of Educational Research*, 86(4), 1272-1311. doi:10.3102/0034654316630383
- Khatti, N., Riley, K. W., & Kane, M. B. (1997). Students at risk in poor, rural areas: A review of the research. *Journal of Research in Rural Education*, 13(2), 79-100.
- Kinnon, E. (2016). *(In)equity and academic streaming in Ontario: Effects on students and teachers and how to overcome these* (Master's paper). University of Toronto, ON. Retrieved from <https://tspace.library.utoronto.ca/handle/1807/72216>
- Kohen, D. E., Leventhal, T., Dahinten, V. S., & McIntosh, C. N. (2008). Neighborhood disadvantage: Pathways of effects for young children. *Child Development*, 79(1), 156-169. doi:10.1111/j.1467-8624.2007.01117.x
- Kramer, L. A., & Berg, E. C. (2003). A survival analysis of timing of entry into prostitution: The differential impact of race, educational level, and childhood/adolescent risk factors. *Sociological Inquiry*, 73(4), 511-528. doi:10.1111/1475-682X.00069
- Ladson-Billings, G. (2006). From the achievement gap to the education debt: Understanding achievement in U.S. schools. *Educational Researcher*, 35(7), 3-12. doi:10.3102/0013189X035007003
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education*, 60(2), 73-85. doi:10.2307/2112583
- Lareau, A. (2003). *Unequal childhoods: Race, class and family life*. Berkeley, CA: University of California Press.
- Lleras, C., & Rangel, C. (2008). Ability grouping practices in elementary school and African American/Hispanic achievement. *American Journal of Education*, 115(2), 279-304. doi:10.1086/595667
- Lubienski, S. T., & Gutiérrez, R. (2008). Bridging the gaps in perspectives on equity in mathematics education. *Journal for Research in Mathematics Education*, 39(4), 365-371.
- McIntosh, P. (1988). White privilege and male privilege: A personal account of coming to see correspondences through work in women's studies. In M. L. Anderson & P. H. Collins (Eds.), *Race, class and gender: An anthology* (pp. 76-87). Belmont, CA: Wadsworth.
- Moschkovich, J. (2002). A situated and sociocultural perspective on bilingual mathematics learners. *Mathematical Thinking and Learning*, 4(2-3), 189-212. doi:10.1207/S15327833MTL04023_5

- Munter, C. (2014). Developing visions of high-quality mathematics instruction. *Journal for Research in Mathematics Education*, 45(5), 584-635.
- Nakhaie, M. R. (2006). A comparison of the earnings of the Canadian native-born and immigrants, 2001. *Canadian Ethnic Studies*, 38(2), 19-46.
- National Council of Teachers of Mathematics. (2012). *Closing the opportunity gap in mathematics education*. Reston, VA: Author.
- National Council of Teachers of Mathematics. (2014). *Access and equity in mathematics education*. Reston, VA: Author.
- Noddings, N. (1992). *The challenge to care in schools: An alternative approach to education*. New York, NY: Teachers College Press.
- Noddings, N. (2012). *Philosophy of education* (3rd ed.). Philadelphia, PA: Westview Press.
- Oakes, J. (1993). Tracking, inequality, and the rhetoric of reform: Why schools don't change. In H. S. Shapiro & D. E. Purpel (Eds.), *Critical social issues in American education: Toward the 21st century* (pp. 85-102). New York, NY: Longman.
- Oakes, J. (2005). *Keeping track: How schools structure inequality*. New Haven, CT: Yale University Press.
- Ontario Ministry of Education. (1999). *Ontario secondary schools, grades 9–12: Program and diploma requirements*. Toronto, ON: Queen's Printer for Ontario. Retrieved from <http://www.ontla.on.ca/library/repository/mon/7000/10279055.pdf>
- Ontario Ministry of Education. (2014). *Achieving excellence: A renewed vision for education in Ontario*. Retrieved from <http://www.edu.gov.on.ca/eng/about/renewedVision.pdf>
- Ontario Ministry of Education. (2017). *Education equity action plan*. Retrieved from http://www.edu.gov.on.ca/eng/about/education_equity_plan_en.pdf
- Organisation for Economic Co-operation and Development. (2012). *Equity and quality in education: Supporting disadvantaged students and schools*. Paris, France: OECD Publishing. doi:10.1787/9789264130852-en
- Organisation for Economic Co-operation and Development. (2016). *Equations and inequalities: Making mathematics accessible to all*. Paris, France: OECD Publishing. doi:10.1787/9789264258495-en
- Parekh, G. (2013). *Structured pathways: An exploration of programs of study, school-wide, and in-school programs as well as promotion and transference across secondary schools in the Toronto District School Board* (Research & Information Services report no. 13/14-03). Retrieved from <http://www.tdsb.on.ca/Portals/Ward11/docs/StructuredPathways.pdf>
- Parekh, G., Killoran, I., & Crawford, C. (2011). The Toronto connection: Poverty, perceived ability, and access to education equity. *Canadian Journal of Education*, 34(3), 249-279.
- People for Education. (2013a). *Minding the gap: Inequality in Ontario's schools*. Retrieved from <http://www.peopleforeducation.ca/wp-content/uploads/2013/05/annual-report-2013-WEB.pdf>
- People for Education. (2013b). *The trouble with course choices in Ontario high schools*. Retrieved from <http://www.peopleforeducation.ca/wp-content/uploads/2013/04/trouble-with-course-choices-in-high-school-2013.pdf>
- People for Education. (2014). *Public education: Our best investment*. Retrieved from <http://www.peopleforeducation.ca/wp-content/uploads/2014/06/annual-report-2014-WEB.pdf>

- People for Education. (2015). *Ontario's schools: The gap between policy and reality*. Retrieved from <http://peopleforeducation.ca/wp-content/uploads/2017/10/P4E-Annual-Report-2015.pdf>
- Reasons, C., Hassan, S., Ma, M., Monchalin, L., Bige, M., Paras, C., & Arora, S. (2016). Race and criminal justice in Canada. *International Journal of Criminal Justice Sciences*, 11(2), 75-99. Retrieved from <http://www.sascv.org/ijcjs/pdfs/reasonsetalijcjs2016vol11issu2.pdf>
- Riegle-Crumb, C., & Grodsky, E. (2010). Racial-ethnic differences at the intersection of math course-taking and achievement. *Sociology of Education*, 83(3), 248-270.
- Roberts, J. V., & Doob, A. N. (1997). Race, ethnicity, and criminal justice in Canada. *Crime and Justice*, 21, 469-522. doi:10.1177/0038040710375689
- Ruck, M. D., & Wortley, S. (2002). Racial and ethnic minority high school students' perceptions of school disciplinary practices: A look at some Canadian findings. *Journal of Youth and Adolescence*, 31(3), 185-195. doi:10.1023/A:1015081102189
- Savin-Baden, M., & Howell Major, C. (2013). *Qualitative research: The essential guide to theory and practice*. New York, NY: Routledge.
- Shapiro, J. P., & Stefkovich, J. A. (2016). *Ethical leadership and decision making in education: Applying theoretical perspectives to complex dilemmas*. New York, NY: Routledge.
- Solomona, R. P., Portelli, J. P., Daniel, B. J., & Campbell, A. (2005). The discourse of denial: How white teacher candidates construct race, racism and "white privilege." *Race, Ethnicity and Education*, 8(2), 147-169. doi:10.1080/13613320500110519
- Yau, M., O'Reilly, J., Rosolen, L., & Archer, B. (2011). *Census portraits: Understanding our students' ethno-racial backgrounds*. Toronto, ON: Toronto District School Board. Retrieved from <http://www.tdsb.on.ca/Portals/0/AboutUs/Research/PortraitsBlack.pdf>
- Zevenbergen, R. (2002). Streaming in school mathematics: A Bourdieuan analysis. *Mathematics Education and Society*, 2, 512-521.