Exploring the Ideology of Success for African and Black Nova Scotian Student in High School Sciences

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Introduction to the Related Literature

In Canadian society, direct and overt racism is present at the individual, cultural and institutional level (Finlayson, 2013; Fletcher & Hernandez-Gantes, 2021; Malinen & Roberts-Jeffers, 2021). “Racial prejudice [towards Black learners] is engrained in our everyday practices and has become the norm in our society” (Fletcher & Hernandez-Gantes, 2021, p. 358). In examining the education of Black learners in Canada, “Black education theory and practice have not been a priority in the mainstream Canadian education [system]” (Codjoe, 2006). Therefore, with the racism, discrimination and negative attitudes directed towards Black learners (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008; Finlayson, 2013; Hamilton-Hinch et al., 2021; Mackey, 2018; Malinen & Roberts-Jeffers, 2021; Tyson et al., 2017; Williams et al., 2020), one must consider the impact of student success through this schooling context.

Schooling for Black Learners

At the individual level, Black learners experience significant degrees of prejudice, labelling, microaggressions, cultural assimilation and an ideology which portrays Black students’ failings on an individual and cultural level (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008; Fletcher & Hernandez-Gantes, 2021; Mackey, 2018; McGee, 2013; Williams et al., 2020). At the institutional level, Black learners often face circumstances, which include, the absence of Black educators, lack of representation of Black/African perspectives, racist and discriminatory policies and practices, racial profiling and differential treatment (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Finlayson, 2013; Fletcher & Hernandez-Gantes, 2021; Hamilton-Hinch, 2021). Simply put, since racism occurs in society, it also exists in schools (Black Learners Advisory Committee, 1994).

In Canada and the United States, the education of Black students has been shaped by the notion of Black inferiority (Ladson-Billings, 2006; Williams et al., 2020), labelling Black students as academic failures (Williams et al., 2020). Therefore, through this disparaging outlook on Black learners, Williams et al. (2020) reveals this viewpoint manifesting in school personnel and as such, have not made Black students' success a priority.

Key Definitions

There are several dichotomies to describe peoples of African-descent. While labels in many of the scholarly research to date have utilized labels such as African / Black Americans, African / Black Canadians and African / Black Nova Scotians, the definitions connected to their labels should not be defined by individuals outside their communities.

In Codjoe's (2001) work, this researcher cites from Dei and Asante to describe the term Black: "The term Black [is] to mean all Black people of African descent—continental Africans and those of African diaspora … it is based on the philosophical foundation and belief that people of African descent share a common experience, struggle and origin" (p. 348). As Codjoe share further, this scholar uses the term "Black interchangeably to mean African-Canadian, African-American and African" (p. 348). There is a distinction between African Nova Scotian and Black Nova Scotian (W. Mackey, personal communication, November 6, 2023). For the label 'African Nova Scotian': "The term African Nova Scotian is used to describe individuals who self-identify as descendants of Black Loyalists, Black Refugees, Maroons, and other original inhabitants of the 52 African Nova Scotian communities" (Hamilton-Hinch et al., 2020, p. 67).

In Sehatzadeh's (2008) work, this scholar uses the term 'indigenous Black population' to describe the earliest settlers, "Black Loyalists, slaves, Maroons, and Black Refugees" (p. 407). Sehatzadeh describes the three major migrations of people of African descent: Black Loyalists

(1782-1784), Maroons (in 1800s) and Black Refugees from slave States in the USA and ex-slaves from Bermuda as part of the final large migration (1812-1815). Therefore, it appears that while African Nova Scotians have the identity of indigenous Black populations (Sehatzadeh, 2008), Black Nova Scotians, are individuals who identify as African but not having the same label as indigenous African Nova Scotians (e.g., people from other places) (W. Mackey, personal communication, November 6, 2023).

Boundaries of the Search for Literature

Prior to running a search of the literature, a preliminary working title was developed. This early title was titled, "African and Black Nova Scotian student success." Through this early development, several key terms were articulated as part of a preliminary search: 'African Nova Scotian,' 'Black Nova Scotian,' 'African Canadian students' and 'Black Canadian students.' Additionally, using the 'AND' and 'NOT' Boolean operators allowed for terms to be included, such as, 'student success,' 'academic success,' 'student achievement' and 'academic achievement.' As a result, this yielded in several dozen articles to review. Once several journal articles were reviewed, emerging themes came into view. Consequently, data mining key terms including (but not limited to): 'Microaggressions', 'labeling', 'stereotypes,' 'biculturality' and 'cultural assimilation' yielded further results.

As the search progressed, an inclusion and exclusion criteria were utilized. This can be found in Table 1. It should be noted that while this study is focused on both the African and Black Nova Scotian students in a secondary school context, recent immigrants or refugees was not considered because it would add a significant level of complexity to an already challenging research topic. Also, this study is focused on a pure-science context, and while 'STEM' (science, technology, engineering and mathematics) content was not necessarily excluded, from personal

teaching experiences and from literature, technology and mathematics pedagogy tends to be very different than science education (Akerson et al., 2018; Lederman & Lederman, 2013). Therefore, the section examining science classrooms did not contain content which involves STEM.

Table 1: Inclusion and exclusion criteria for the literature review search

Inclusion Criteria:	Exclusion Criteria:
Preference for Canadian context	Recent immigrants or refugees
Preference from secondary school context	International students
Preference from Black scholars	Context outside American or Canadian schools
Preference for peer-reviewed journal articles	Post-Secondary context
Preference for recent sources (2010 onwards)	

Search Results

Three key themes have emerged. The first theme examines the 'ideology of success.' The second focuses on the 'individual factors and circumstances' which impacts Black students. The third focuses on the 'sociocultural factors and circumstances' which act as barriers against the success for Black learners. Table 2 shows the primary journal articles used. While certain literature appears in a particular theme, most crosses into other sections. There appears to be a gap in literature focused on recent Canadian high school, pure-science context.

Table 2: Major scholarly sources utilized for this literature review

Theme 1: The Ideology of Success	
Source:	Conceptual Information:
Gorski (2018)	Ideology of success (deficit, grit and structural).
Ladson-Billings (2006)	Use of deficit-oriented words and language.
Theme 2: Individual Factors and Circumstances	
Source:	Conceptual Information:
Codjoe (2006)	Impact of individual and school culture.
Fletcher & Hernandez-Gantes (2021)	Coping strategies in preparation for post-graduation.
Tyson et al. (2005)	Negotiation of biculturality and upper-level classes.
Theme 3: Sociocultural Factors and Circumstances	
Source:	Conceptual Information:
Black Learners Advisory Committee (1994)	Systemic impact on Black and African Nova Scotian students.
Dei (2008)	Schools as a top-down, authoritative approach.
Finlayson (2013)	Family and external support and Eurocentric curriculum.
Hamilton-Hinch et al. (2021)	Perspectives of African Nova Scotian parents on schooling.
Kanu (2003)	Postcolonialism and Eurocentric curriculum.
Lee & Marshall (2009)	Review of key program areas post-BLAC Report.
Mackey (2018)	Perspective of an African Nova Scotian school supervisor.
Malinen & Roberts-Jeffers (2021)	Black and white teacher perspectives on Black families.
Parsons & Morton (2022)	Black student perspectives of excellent science teachers.
Williams et al. (2020)	Racial bias of education systems and White-privilege.

The Context of Education for Black Canadian and American Students

One of the manifestations in the education systems in Canada and the United States is the issue of achievement and underachievement. At a broad level, Black learners experience situational contexts such as differential treatment by race, lack of curricular sophistication, unjust policies and practices and misrecognition (or unrecognition) of racial identities (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008, Finlayson, 2013; Fletcher & Hernandez-Gantes, 2021, Malinen & Roberts-Jeffers, 2021; McGee, 2013). Through such circumstances, how can one thrive in such a negative and defeating environment?

What Black learners face is contained in Figure 1. At an individual level, there are individual factors and circumstances that impact Black learners. As one moves away from focusing on the individual, one may consider the sociocultural factors and circumstances. What surrounds these factors is the theme related to language and ideology of success. Its impact is steeped into both circumstances. Finally, the chapter will end by tying the literature review to the ongoing circumstances within pure science-based classrooms.

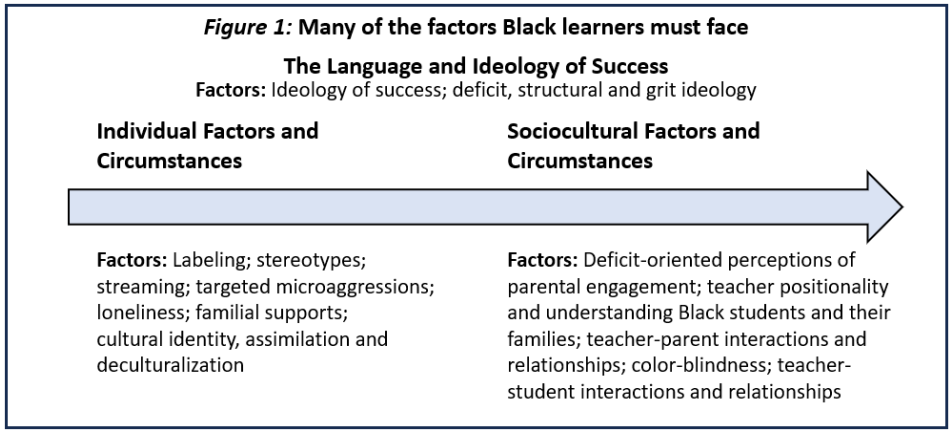

Figure 1: **Many of the factors Black learners must face**

The Language and Ideology of Success

One of the themes that emerged is the language and ideology of success. The greatest barrier to schooling for Black learners is not entirely due to a lack of equity initiatives (Dei,

2008; Gorski, 2018) nor due to a lack of care from educators (Gorski, 2018; Mackey, 2018). As Gorski argues, it is the misunderstood ideology subscribed and a lack of will to understand.

The Ideology of Success

One of the conditions that cultivates success for students appear to be driven by ideology. How one interprets, sees and makes sense of an experience or phenomenon is largely due to ideology (Gorski, 2018). “Ideology drives understanding—how we come to know what we know about why disparities exist and whether what we know is accurate” (Gorski, 2018, p. 96). In the educational realm, educators, researchers and policymakers exist in different ideological spectrums (Ngo, 2023). As a result, for those who fulfill such roles in education, such individuals may subscribe to deficit, structural or grit ideology. While there is no defined boundary that describe an individual as purely adhering to one of the three listed ideologies, one may favour one ideology over another (Ngo, 2023).

Deficit Ideology

While education systems in Canada and the United States are different from one another, Black and African Nova Scotian students faces very similar experiences (Hamilton-Hinch et al., 2020). In both countries, culturally, there is a narrative which focuses on the individual (Dei, 2008; Ladson-Billings, 2006, 2021; Williams et al., 2020). Regardless of what group one belongs to, the culture of the individual is observed as meritocracy (Ladson-Billings, 2006).

Through the examination of critical scholars, meritocracy is a myth (Apple, 2010; Cummins, 2021; Ladson-Billings, 2021). Deficit ideology is rooted in meritocracy (Dei, 2008; Gorski, 2018; Wiliams et al., 2020). Deficit ideology is the believe that “poverty is the natural result of ethical, intellectual, spiritual, and other shortcomings in people who experience it” (Gorski, 2016, p. 381). Therefore, in examining deficit ideology in the lens of an educator,

students may change their trajectory of success by recognizing and adjusting their actions, decisions and mindsets (Gorski, 2016, 2018). As described by Ngo (2023), often there is a lack of focus or understanding of the structural conditions that factor into the success of struggling students. It is noteworthy to add that achievement ideology appears to be very similar to deficit ideology because it attaches individual decisions, effort and action to reasons why people fail or get ahead (Dei, 2008).

Historically, in educational realms, deficit rhetoric continues to overshadow the systemic factors that promote Black student success (Codjoe, 2001, 2006; Dei, 2008; Hamilton-Hinch et al., 2021; Ladson-Billings, 2006; Malinen & Roberts-Jeffers, 2021). When one subscribes to deficit ideology, they appear to take the blame the victim approach (Gorski, 2018; Ladson-Billings, 2006; Williams et al., 2020). As Gorski reveals, this ideology stereotypes marginalized peoples as intellecturally, culturally and morally inferior compared to wealthier individuals. Consequently, blaming Black students for their lack of success paramounts to blaming them for the oppression they experience in school and society (Gorski, 2018; Ladson-Billings, 2006; Williams et al., 2020).

Structural Ideology

For educators and policymakers who subscribe to deficit ideology, they often fail to recognize the structural circumstances that impact learners (Gorski, 2016, 2018). These educators and policymakers are not heartless by any means. However, through the culture of meritocracy, it is sometimes difficult to think about any other context other than the focusing of the individual (Gorski, 2016; 2018, Ladson-Billings, 2006). Structural ideology is situated on the opposite end of deficit ideology (Gorski, 2016, 2018). Individuals who subscribe to structural ideology believe that the disparity in education is due to the inequitable distribution of access

and opportunities (Gorski, 2016, 2018). As Ngo (2023) comments, there is a recognition of other factors that may impact the education of learners. This includes, but not limited to, poverty, socioeconomic status, family, gender, race and inequity in school policies and resources.

Grit Ideology

Grit is coined by Duckworth et al. (2007) as perseverance and passion for long-term goals. Those who demonstrate gritty traits tend to have the ability to persist and overcome barriers when faced with significant adversity (Ngo, 2023). Grit falls between deficit and structural ideologies; deficit being at one end and structural at the other end (Gorski, 2016, 2018; Ngo, 2023). While Duckworth et al. is well intended in their proposal of grit to the academic world, grit appears to be a response to help support marginalized individuals and communities in overcoming obstacles, barriers and oppression (Gorski, 2016, 2018). While it seems the concept of grit does not consider the unequal circumstances which students experience, it still emphasizes skills to help students thrive in school (Gorski, 2016, 2018).

Conclusion

This beginning section introduces the ideology of success. How an individual interprets, sees and makes sense of an experience or phenomenon is largely due to ideology (Gorski, 2018). This section introduces the deficit, structural and grit ideologies that exist within schooling. The next section begins by discussing the individual (i.e., personal) context for Black learners.

Individual Factors and Circumstances

For many students, high school is a time in which Black students learn and explore their racial identities in relation to their communities and the broader society (Fletcher & Hernandez-Gantes, 2021). At the individual level, there are many factors that influence the learning of Black students. They include familial and community support (Black Learners Advisory Committee,

1994; Codjoe, 2001, 2006; Finlayson, 2013; Hamilton-Hinch et al., 2021; Malinen & Roberts-Jeffers, 2021), bias, labeling, alienation, microaggressions and stereotypes (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008; Finlayson, 2013; Fletcher & Hernandez-Gantes, 2021; Hamilton-Hinch et al., 2021; Mackey, 2018; Malinen & Roberts-Jeffers, 2021; Tyson et al., 2017; Williams et al., 2020) and biculturality (Codjoe, 2001, 2006; Hamilton-Hinch et al., 2021; McGee, 2013; Tyson et al., 2017; Williams et al., 2020). What this next section strives to provide is a detailed account of the individual factors and circumstances that influence school experiences for Black and African Nova Scotian learners.

Labelling, Stereotypes and Streaming

Some educators consciously or unconsciously label and stereotype Black learners using inappropriate labels such as, 'loud,' 'lazy,' 'disruptive,' 'dumb' and 'disturbed,' to name a few (Codjoe, 2001, 2006; Dei, 2008; Finlayson, 2013; Williams et al., 2020). These labels result in Black students experiencing racism in many ways, from negative stereotypes, being called names, being rendered invisible or singled out or, being accused of not wanting to achieve academically (Finlayson, 2013). There is also a myth that some educators and the public have around Black learners. Such myth describes a 'genetic inferiority,' that Black individuals are not capable of academic achievement (Codjoe, 2006). Such harmful rhetoric often victimizes and perpetuates an unending cycle of harm because Black learners buy into a stereotype that they cannot compete academically with White students, further depressing their performance through self-doubt and a loss of sense-of-self (Codjoe, 2001).

Targeted Microaggressions and Loneliness

Black learners often face racism in school and society in the form of microaggressions, both through verbal and nonverbal communication (Fletcher & Hernandez-Gantes, 2021;

Hamilton-Hinch et al., 2021; Mackey, 2018; Williams et al., 2020). As these scholars affirm, such communications are intended to not only place an inferiority status on those not belonging to the dominant group, but also negatively influence the sense-of-self for such individuals within the marginalized group. Consequently, these microaggressions create a narrative that Black learners are not up to par compared to their dominant others.

In the classroom, educators often communicate their expectations in verbal and nonverbal ways. For example, Mackey (2018) claim teachers often exhibited positive, non-verbal behaviours (e.g., nods, smiles and winks) to students considered bright, as opposed to those considered dull. The scholar also claims such teachers would spend more time with able-bodied students. Through such inviting or rejecting messages, such students may further feel isolated, lonely and singled out (Black Learners Advisory Committee, 1994; Codjoe, 2001; Hamilton-Hinch et al., 2021).

Familial Supports

To combat against much of these negative impacts, many Black learners may lean on familial supports (e.g., parents, guardians and other familial relatives). Narratives from Finlayson (2013) demonstrate the nurturing power parents have for their children. They encourage their children through reinforcing their child's sense-of-self. It is evident that building on a students' sense-of-self is a necessity to promote achievement (Ngo, 2023). When parents are unavailable, other familial relatives takes the mantle of responsibility by fulfilling this role (Finlayson, 2013).

Whenever Black students faced adversity in schools, parents became advocates for their children, ensuring that such issues are addressed (Finlayson, 2013; Hamilton-Hinch et al., 2021). As documented by Hamilton-Hinch et al., Black parents being powerful advocates came not only as a response to their own negative childhood experiences, but because they wanted to fight

against ‘generational streaming.’ As these researchers describe, parents wanted to ensure all opportunities were available for their child, without the perception of perceived challenges.

Cultural Identity, Assimilation and Deculturalization

Undoubtedly, because schools are very diverse environments, the recognition and appreciation of cultural identities are of the utmost importance for maintaining the success for all students. “Cultural identity is how we view ourselves in terms of race, ethnic background, our values, language, customs, religious and social practices, clothing and diet” (Black Learners Advisory Committee, 1994, p. 41). As the committee acknowledge, the self-esteem and self-concept of students are deeply rooted in the formation of cultural identity. Unfortunately, due to the curriculum and educational practices today, it appears that Eurocentric practices continue to privilege majoritarian stories, rather than placing non-White stories on equal footing (Kanu, 2003; Malinen & Roberts-Jeffers, 2021; Williams et al., 2020).

When students who identify as being of a non-privileged group (i.e., Black learners or learners from racialized communities) are faced with majoritarian stories, they are examining narratives from a privileged, White perspective (Williams et al., 2020). This centering continues to uphold White ways of knowing and is racially biased on ensuring Whiteness as a standard for living (Kanu, 2003; Williams et al., 2020). As such, Eurocentric education is an attack on Black learners as it renders them invisible (Williams et al., 2020). For students of European descent, being recognized is something such students take for granted but, for African Nova Scotian students, they often feel invisible and underrepresented (Hamilton-Hinch et al., 2021).

For Black and minority students, cultural domination, in the form of cultural assimilation, is experienced in all facets of life (Codjoe, 2006). As Codjoe identify, schooling practices may unintentionally pressure culturally dominated groups into accepting the dominant group’s view.

In terms of a Eurocentric curricular practice, Eurocentrism becomes a 'civilizing mission,' with an intended purpose to form an 'official knowledge' for all students (Kanu, 2003). This mechanism for domination appears to degrade all the rich historicity, perspectives and values of Black and minority individuals, further leading to a deculturalization of Black students (Codjoe, 2006). Many scholars recognize the higher-degrees of self-esteem and ability for Black learners to counter against racist and discriminatory narratives when they not only have affirmation and pride within their cultures but also within the multicultural mosaic (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008; Finlayson, 2013; Fletcher & Hernandez-Gantes, 2021; Hamilton-Hinch et al., 2021; Mackey, 2018; Malinen & Roberts-Jeffers, 2021; Tyson et al., 2017; Williams et al., 2020).

There is evidence of student success when Black learners can pivot between their Black and broader cultures (Codjoe, 2006). This phenomenon as biculturality (i.e., cultural straddling) (Carter, 2008; Codjoe, 2006; McGee, 2013). Students who are cultural straddlers are ones that can "successfully negotiate primary and dominant cultural codes in school in order to acquire academic success while also affirming and maintaining strong pride in their racial and ethnic heritage within the school context" (Carter, 2008, p. 469).

While, as a practice, adopting and sustaining biculturality may help support Black learners, narratives from McGee (2013) indicate the contrary. As this scholar identified, for Black students who are well versed in their ability to pivot between both White and Black cultures, some Black learners may avoid White-dominated subjects and careers (e.g., Applied Sciences) because it would obligate them to yield more towards an ideology that upholds White ways of behaving, doing and thinking. Simply put, Black learners may be unwilling to risk

further compromising their cultural identity because if they lean on White norms, it may pathologize their own Black identity as inferior, likely causing further harms (McGee, 2013).

Conclusion

When one examines the factors, situations and circumstances which lead to academic success for Black and African Nova Scotian students, Gorski (2016, 2018) describe the spectrum of deficit, structural and grit ideologies. While this section heavily focused on the impacts on the learner, some of these factors may straddle between sociocultural and institutional contexts. In the following section, I examine the sociocultural circumstances which impact Black learners.

Sociocultural Factors and Circumstances

The last section focused on the impact of individual circumstances which impact Black learners. This segment focuses on the cultural competency of educators, whether negative or positive, in impacting the success of Black learners. It marks a step away from focusing on the individual and moves towards examining the external, structural conditions at play.

Deficit-oriented Perceptions of Parental Engagement

Sadly, through digital and other forms of media, Black families are often depicted in a very negative light (Codjoe, 2001; Malinen & Roberts-Jeffers, 2021). As a result, it is likely that such negative depictions can seep into an educator's consciousness, thereby impacting their views and perceptions of Black learners and their families. Research shows low-income families are less likely to attend school events for family engagement compared to wealthier families (Gorski, 2016, 2018). As a result, Black learners and their families are also perceived by educators as not caring about schooling or education (Codjoe, 2001; Hamilton-Hinch et al., 2021; Malinen & Roberts-Jeffers, 2021).

There may be a multitude of reasons as to why low-income families are unable to attend school functions. One possible reason may be due to low-income parent(s) having to work shifts that overlap school schedules. As Ngo (2023) identifies in his research, it could also be that low-income parents may have to work full-time jobs at odd hours to make ends meet. If educators espouse to the belief that low-income parents do not care, such conclusions may be rooted in false ideologies. As Gorski (2016, 2018) argues, when an individual subscribes to deficit thinking, they ignore all the structural conditions in which some of these parents exist in. Therefore, deficit thinking prevents educators from thinking of viable solutions to make parental engagement accessible; especially to high-poverty communities (Finlayson, 2013; Gorski 2016, 2018; Hamilton-Hinch et al., 2021; Malinen & Roberts-Jeffers, 2021).

Teacher Positionality and Understanding of Black Students and their Families

Malinen and Roberts-Jeffers (2021) investigated the perceptions and viewpoints of Black and White teachers in Nova Scotia. While Black teachers in their research had the view that all parents love their children, no White teacher interviewees had this view. In examining multiple sources (e.g., student / parent narratives and scholarly research), it is apparent that most educators lack relevant training in Black historicity, culture and cross-cultural understanding (Ball & Ladson-Billings, 2020; Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Fletcher & Hernandez-Gantes, 2021; Hamilton-Hinch et al., 2021; Malinen & Roberts-Jeffers, 2021). As a result, without meaningful actions to address these issues, it likely contributes to further educational disparities for Black learners (Malinen & Roberts-Jeffers, 2021).

The attitude of a teacher is essential for teaching students. For teachers who either openly, conceal or have unconscious racist and discriminatory attitudes, there are clear negative impacts which act as an environmental stressor on academic performance (Codjoe, 2001). Regrettably, if

teachers have such biased views, it may be likely that such attitudes are reflected towards Black families (Codjoe, 2001). Through Malinen and Roberts-Jeffers' (2021) investigation, the authors claim teachers of color appeared to have much more sympathy and sensitivity for other students of color because they would understand the struggles and difficulties of everyday life. This seems to demonstrate a sense of awareness that educators of multiculturality may have.

Teacher-Parent Interactions and Relationships

One of the most significant factors that leads to the success of Black learners is the positive relationship between teachers and parents (Black Learners Advisory Committee, 1994; Codjoe, 2006; Finlayson, 2013; Gorski, 2018; Hamilton-Hinch et al., 2021; Malinen & Roberts-Jeffers, 2021). As Hamilton-Hinch et al. claim, a key to Black learners' success is the active communication between school and home. However, with the backdrop of negative labelling and perceptions on Black families, there are indeed tensions at play.

Several narratives from White teachers in Malinen and Roberts-Jeffers (2021) described "Black families as physically, emotionally, or professionally threatening … from claims of physical threat to the view that Black families knowingly and falsely undermine teachers' professional reputation with accusation of racial bias" (p. 835). By describing Black parents through such distortions, it demonstrates a lack of understanding or awareness to what may be happening behind the scenes. Reflecting on Mackey's (2018) childhood narratives provides a possible reason as to why parents are perceived to have such reactions. The echoes of the past appear to be present with current narrative experiences of Black learners. As such, the reactions of Black parents may be a result of having similar negative experience and prejudices in their childhood. As parents claim, they had to fight with teachers to not only hold them accountable but to advocate for the rights and dignity of their children (Hamilton-Hinch et al., 2021).

Color Blindness in the Education System

In an educational context, some educators may inadvertently follow a color-blind approach which entails treating all students the same but not necessarily treating all students fairly (Black Learners Advisory Committee, 1994; Codjoe, 2001, 2006; Dei, 2008; Hamilton-Hinch et al., 2021; Williams et al., 2020). As such, a color-blind approach seeks only to deny Black learners their place and contributions in school (Codjoe, 2006).

One may surmise there is systemic racism occurring in schooling practices. Eurocentric practices are privileged and anything other than White practices is disregarded (Kanu, 2003; Malinen & Roberts-Jeffers, 2021; Williams et al., 2020). What ends up happening through a color-blind education is the reproduction of the status quo (Dei, 2008), inhibiting the recognition of the impact of stressors such as the daily exposure to racial micro- and macro-aggressions that takes place towards racialized people (Hamilton-Hinch et al., 2021). Aside from Eurocentric curricular practices, color blindness is also evidenced with school-wide, zero tolerance discipline policies (Codjoe, 2001; Dei, 2008; Williams et al., 2020).

Teacher-Student Interactions and Relationships

Even though the circumstances many Black learners must often experience, there is hope in some of the narrative stories from researchers. Many students in Finlayson's (2013) study depicted the very positive impact, compassion and genuine care many teachers had for them. These teachers not only held high expectations for Black students but also established mentor-mentee relationships and built upon their strengths and weaknesses. In addition to these positive encounters, students described the empowerment they received from their teachers. These teachers practiced distributive leadership, such that they relied on their African Nova Scotian students' voices to make decisions around teaching and, used student feedback to make

selections of course resources. These experiences are also echoed in Mackey's (2018) stories. As a Grade 7 student, Mackey's positive and encouragement came from a teacher who not only had an appealing teaching style, but was always motivated to see her succeed, secure and valued.

Streaming is often practiced by teachers, guidance counsellors and other educational staff (Black Learners Advisory Committee, 1994; Codjoe, 2001; Finlayson, 2013; Hamilton-Hinch et al., 2021; Mackey, 2018). While this appears to be the case, there are circumstances where educators realize the damaging effects of streaming and choose to act.

In Mackey's (2018) Grade 9 stories, she described a counternarrative in which her teacher gathered all the Black students in her grade and held a private meeting. The goal of the teacher appeared to be focused on preparing students for possible streaming that may take place in their high school course selections. As Mackey recounted, her teacher outlined the difference between academic and non-academic courses and how such choices may affect future post-secondary education enrolment. Mackey also detailed her teacher informing students to reject the recommendation of the guidance counsellors as they may attempt to steer them into such non-academic level programs. Whether school leadership knew about such meeting is speculation (Mackey, 2018). However, this narrative also demonstrates how some phenomenal educators would go against the grain and hold such a session. Such educators may have deeply understood the adversity that Black students face and decided to do something about it.

While these narratives from Finlayson (2013) and Mackey (2018) describe a few pivotal moments where educators positively enhanced the experiences for Black learners, they reflect the powerful roles educators can play. It appears that these teachers understood the systemic challenges Black students face, as their attitudes, perceptions and ideology evidently promoted a culture of success for their Black learners.

Conclusion

This section explored deficit-oriented perceptions of Black families, teachers' positionality and bias, the importance of teacher-parent relationships, color blindness and the importance of meaningful teacher-student interactions and relationships. In today's schooling, there is a strong perception among Black students and their families that schools are insensitive and unsympathetic towards Black learners (Black Learners Advisory Committee, 1994). As such, educators and school institutions need to be deeply reflective of the sociocultural contexts that exists so that Black learners can thrive.

Science Classrooms for Black Learners

This study is focused on a pure-science context, and while STEM research was appreciated, through personal teaching experiences and from a review of relevant literature, pedagogies involved with technology, engineering and mathematics tend to be different than that of the sciences (Akerson et al., 2018; Lederman & Lederman, 2013). Akerson et al. stressed that STEM is a socially constructed label that was in response to regional, global, political and economic pressures. Lederman and Lederman make elaborations to Akerson et al.'s position, further describing the merger of the components of STEM having issues with their individual epistemological positions (i.e., what deems to be evidence). As these researchers describe, educators attempting to merge these individual components may have difficulty due to training and experience in these other component fields.

The literature review in this section is absent of any STEM content. Surprisingly, there appears to be very little literature focusing on pure-science contexts that fit within the inclusion-exclusion criteria. Most, if not all, literature opts for STEM. A promising source was Parsons and

Morton's (2022) empirical study which examined self-identified African American students and their actualization on how they would confer an award to their 'best science teachers'.

Despite the changing milieu recognizing inequity in racialized communities, inequity in science education continues to be present for Black students (Parsons & Morton, 2022). As reflected by the literature review so far, these scholars address very similar circumstances for Black learners (e.g., deficit ideology, negative perceptions, alienation, verbal and nonverbal interactions with educators and unjust school policies and practices). Consequently, the learning environments in science classrooms can either influence the fascination in science or cause a refusal to participate in the subject area (Parsons & Morton, 2022).

From the perspective of Black learners, it is not surprising that these students often characterized their 'best science teachers' as someone who was present in their lives, who cared, who held high expectations and who made time to ensure students learned at the best of their ability (Parsons & Morton, 2022). Black learners in Parsons and Morton also described the very positive attitudes these teachers held; often building strong and meaningful relationships, having the ability to pivot their teaching and assessment practices (e.g., alternate forms of assessments, re-testing and re-evaluation or, supporting student choices), having a great personality and always ensuring that they felt safe in their learning environments. To that end, these students expressed a joy for attending and engaging in sciences.

What these very positive and humbling experiences demonstrate is the power educators have in supporting learning for Black students. As findings from Parsons and Morton (2022) show, the 'best science teachers' held the highest standard of care, being very responsible and sensitive to the physical, emotional and psychological needs of their Black learners. Such responsibilities cultivate the conditions needed for Black learners to thrive (Black Learners

Advisory Committee, 1994; Finlayson, 2013; Malinen & Roberts-Jeffers, 2021). As Mackey (2018) stress, to ensure success for Black learners, educators need to pause their day-to-day motions of teaching to the curriculum, stop using outdated teaching methods and develop a mindset capable of supporting and encouraging not only Black learners but all learners.

Closing the Chapter

It is evident that there are a multitude of factors, situations and circumstances which impact Black learners. While what has been provided describes some of the significant factors at play, it is not intended to be an exhaustive list. It is evident that individual and sociocultural factors are also at play. What is also pervasive is how the theme of ideology appears to affect the individual and sociocultural conditions. While the intention for this chapter was not to dichotomize these factors into separate categories, as an individual who do not belong within the Black community, I interpreted the literature as a stacked deck of cards, of multiple layers affecting Black learners in today's schools. Finally, while research appears to categorize science as STEM, through personal teaching experiences and a review of the literature, grouping them as such would be inappropriate (Akerson et al., 2018; Lederman & Lederman, 2013).

Finally, this chapter drew mostly upon Black and African Nova Scotian scholars. Their powerful voices and contributions added so much value to this work. While this initial literature review submission is intended to be a working draft, further revisions will be required to add and enhance certain sections further.

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