

A Teacher's Autoethnography of Grit and Student Success in a High School Physics Classroom

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Abstract

What factors, situations and contexts lead to the success of students in school? Authors such as Duckworth et al. (2007) suggest that highly accomplished students tend to have a high degree of grit. While much research related to grit focuses on deficit ideological traits such as determination, sustained effort and the ability to persevere when encountering obstacles, other significant and sometimes overlooked structural factors, such as, poverty, socioeconomic status, race, gender and inequity of school resources, also significantly impact a student's ability to be gritty and successful in schools.

Through an autoethnographic lens, the culture of grit and student success was researched and explored within a high school physics classroom. While deficit ideological factors exist in the autoethnographic stories involving former students, structural ideological factors also show crucial moments when a student's grit and success radically changed for the better or declined as a result.

Keywords: Grit, student success, high school, physics, deficit ideology, structural ideology

Investigating Grit and Student Success

I have always been fascinated by students who, day in and day out, make incredible strides towards success. I am often left with the question, “What factors, traits, qualities, life experiences or attitudes allow students to be so academically successful?” At the same time, “What situations, circumstances, and factors may possibly act as a hindrance for student success?” Through much reflection, I began to formally research the nature of grit and student success in my high school physics classroom.

In developing a theoretical framework to investigate student success, I encountered a concept called grit. Grit is defined as passion and perseverance for long-term goals (Duckworth et al., 2007; Duckworth & Quinn, 2009). Grit was relevant because it provided many reasonable explanations as to why some of my students were not succeeding. It is noteworthy that the literature on grit also expanded into other areas of research including Dweck et al.’s (1995) work on mindsets; the Big Five personality inventory and, intrinsic and extrinsic motivations from Ryan and Deci (2000). While Duckworth et al. and Duckworth and Quinn largely used selective data sets, this article shows how other variables such as race, social inequities, and familial structures may impact grit.

Literature Review

Understanding Grit and Mindsets

Duckworth was initially a teacher who also wrote the 2016 book *Grit: The Power of Passion and Perseverance*. Duckworth wondered why some students were outperforming others. In trying to understand the reasoning for this, she compiled the IQ scores of her students and found that some of the best performers did not have the highest IQs; however, some of her best performers had lower IQs (Hochanadel & Finamore, 2015). Through further investigation, the one quality that her highest performers had was grit (Duckworth, 2016).

Grit is a term coined by Duckworth et al. (2007) as passion and perseverance for long-term goals. It is the ability for an individual to persist and overcome challenges when facing significant obstacles and barriers. Grit is measured using a survey with Likert scale found in Duckworth et al. (2007) and in Duckworth and Quinn (2009). Once an individual completes the survey, the results are averaged to determine an overall grit score. Since the seminal research regarding grit, grit has received much attention from both researchers and classroom teachers. It is a wonder whether grit alone can be used as a predictor of achievement.

Fixed and Growth Mindsets

One of the possible reasons why certain individuals possess more grit may be due to the mindsets of individuals. Duckworth et al. (2007) and Dweck et al. (1995) believed that it was not

a lack of intelligence that led students to failure but rather, it was a lack of effort that, therefore, caused some students to question their belief system. Dweck et al. believe, “people’s assumptions about the fixedness or malleability of human attributes predict the way they seek to know their social reality, as well as the way in which that reality is experienced and responded to” (p. 282). It can be said that individuals who believe that they have fixed-like, and non-malleable qualities of intelligence are bounded by entity theory (fixed mindset). “Entity theory portrays a world that is relatively stable and predictable” (Dweck et al., 1995, p. 281). But those who believe that intelligence is malleable and can be progressively changed follow incremental theory (growth mindset) (Dweck et al., 1995).

Dweck et al. (1995) illustrate that individuals with fixed mindsets tend to have less grit, less adaptability and poor coping mechanisms. Such individuals would show a greater tendency to blame themselves because they were not born more capable of achieving success. Dweck et al. share, “This tendency towards global self-judgments is usually accompanied by a greater vulnerability to other aspects of a helpless reaction, such as negative [affect], disrupted performance, or the abandonment of constructive strategies” (p. 275). Contrast that with those who subscribe to a growth mindset. These authors believe that such individuals would likely blame their negative outcomes upon a lack of study effort strategies to overcome such situations.

What is the Result of Having Grit?

It appears that those with high degrees of grit tend to experience greater achievements. Such examples include the prediction of first-year GPA scores (Akos & Kretchmar, 2017); a greater chance of success in graduating high school (Eskreis-Winkler et al., 2014); higher test score gains in math and English language arts, a reduction in absenteeism and excellent productive behaviours from fourth to eighth grades (West et al., 2015).

While these examples provide some indication of the value of grit and its implication to academic success, it is worth mentioning that Duckworth et al.’s (2007) and Duckworth and Quinn’s (2009) data was largely derived from specific populations. For example, Duckworth et al.’s study on cumulative GPA among undergraduate students at an elite university may not be generalizable with those at a non-elite institution. Ivcevic and Brackett (2014) acknowledge this limitation as Duckworth et al., and Duckworth and Quinn used samples from students, largely derived from private schooled, middle-class family backgrounds. Such a sample could hide how socioeconomic status or systemic barriers may impact grit.

Personality, Motivation and the Big Five Inventory

Grit, Personality and the Big Five Inventory

Muenks et al. (2017) showed that grit emerged from personality theory. There are five factors, known as the Big Five that make up an individual’s personality. They are “Extraversion,

agreeableness, conscientiousness, openness, and neuroticism” (Rimfeld, Kovas, Dale & Plomin, 2016, p. 780).

To describe the Big Five factors, Caspi et al. (2006) describe those with extraversion to be expressive, energetic and sociable. Such individuals have strong positive emotions. Contrast this with those who are introverted, where such individuals are quiet, seldom to socialize and reserved. Those who have a strong degree of agreeableness have positive traits such as cooperation, empathy, politeness and are willing to accept other individuals’ points of view. This is contrasted with disagreeable individuals who are aggressive, stubborn and set in their ways.

Grit is found to be closely affiliated with conscientiousness, more so than the other Big Five factors (Duckworth et al., 2007; Dumfart & Neubauer, 2016; Hill et al., 2014; Ivcevic & Brackett, 2014, Poropat, 2009; Rimfield et al., 2016; Steinmayr et al., 2018; West et al., 2015). Conscientious individuals are described by Caspi et al. (2005) and Poropat (2009) as being incredibly persistent and determined in their tasks, responsible, independent and attentive. Caspi et al. and Poropat claim that those who display openness often share similar overlapping traits to that of extraversion and agreeableness and, as such, are often imaginative and creative. For Nofle and Robins (2007) and Poropat (2009), these researchers believe that conscientiousness, agreeableness and low neuroticism are also significant factors that cultivate success.

Motivation and Grit

Motivation is related to grit because individuals may be motivated to do something purely out of internal interest or, because it may reward an external outcome (Ryan & Deci, 2000; Von Culin et al., 2014). Ryan and Deci provide a range of factors that impact on the motivations of individuals, including resistance, perceived control, disinterest, attitude, resentment and a lack of acceptance of the value of a task. Individual differences in mindsets provide one of the possible reasons why individuals are either motivated or amotivated (Poropat, 2009; Von Culin et al., 2014).

According to Ryan and Deci (2000), there are varying degrees of motivation and are influenced by a perceived locus of control. The “locus of control is the belief that life events are causally attributable to one’s own actions” (Radl et al., 2017, p. 221). Intrinsic motivation is defined as “the doing of an activity for its inherent satisfaction rather than for some separable consequence” (Ryan & Deci, 2000, p. 56). As these researchers describe, intrinsically motivated individuals act not for any instrumental reason, but purely for the positive experiences gained from extending themselves further.

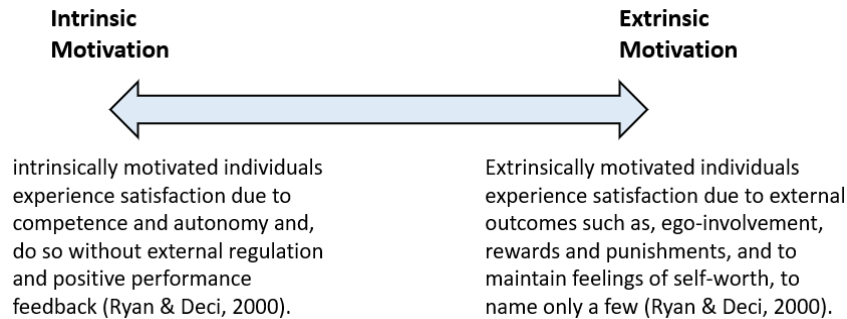


Figure 1: The spectrum of intrinsic and extrinsic motivation as described by Ryan and Deci (2000).

Individuals with a high-degree of intrinsic motivation experience satisfaction due to competence and autonomy and, do so without external regulation and positive performance feedback (Ryan & Deci, 2000). Extrinsically motivated individuals differ because the performance of an activity is used to satisfy external outcomes such as, ego-involvement, rewards and punishments, and to maintain feelings of self-worth, to name only a few (Ryan & Deci, 2000).

Intrinsic motivation is related to grit because “intrinsic motivation [is] the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn” (Ryan & Deci, 2000, p. 70). This notion speaks to the theme of grit. Von Culin et al. (2014) showed that individuals who were extrinsically motivated were less gritty than their intrinsic peers. While grit is important and became increasingly important as Duckworth et al.’s (2007), and Duckworth and Quinn (2009) published new research, I do want to also acknowledge that an understanding of structural factors needs to be considered as well.

Social and Familial Structures

Deficit, Structural and Grit Ideologies

Despite the advances and good intentions of many educational researchers who examine grit, it would be imprudent not to recognize the social, racial and familial structures related to grit and the success of students. In today’s schools, it appears that students come into a classroom having unequal privileges and opportunities. Such unequal power structures are sometimes overlooked or not sufficiently examined.

Gorski (2016) examines the social structures related to grit ideology. Meritocracy is the belief that where individuals find themselves ending up in the world is a direct result of their effort or non-effort. It is the belief that no matter what position one finds themselves in society, they could, through their efforts, end up becoming Prime Minister. This meritocracy also extends to the student context; “[students] who demonstrate high performance through hard work and individual effort in formal education can achieve positive future outcomes” (Carter, 2008, p.

467). Critical educational researchers have shown us that meritocracy is a myth (Apple, 2010; Cummins, 2021; Ladson-Billings, 2021).

In a world of different educational ideologies, educators, policymakers and researchers exist in different ideological spectrums. For Gorski (2016), deficit and structural ideologies exist on two ends of a wide spectrum and are not treated as a binary. Those who subscribe to a deficit ideology believe that “poverty is the natural result of ethical, intellectual, spiritual, and other shortcomings in people who are experiencing it” (p. 381). Therefore, in an educational context, educators who believe in deficit ideology believe people can change their success and situation through the recognition and change of “attitudes, behaviors, cultures, and mindsets” (p. 381). Often, there is a lack of recognition and/or importance put on structural inequities. In a world of inequity and problems deeply rooted due to unequal power structures, equal opportunity simply does not exist (Gorski, 2016; McIntosh, 2005). As a result, the term equal opportunity only acts to “[deny] that systems of dominance exist” (McIntosh, 2005, p. 281).

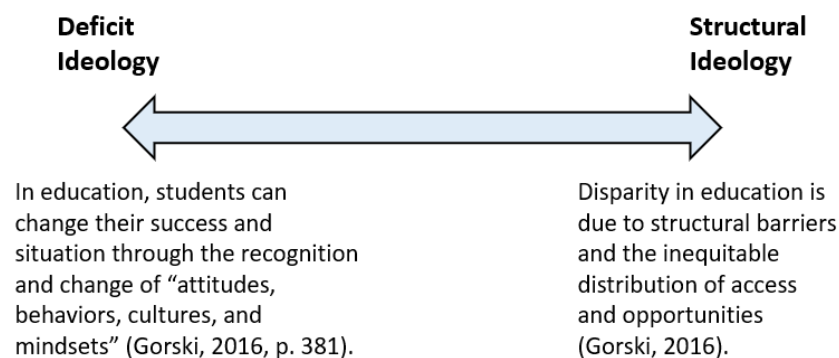


Figure 2: The spectrum of deficit and structural ideology as described by Gorski (2016).

Structural ideology is on the polar opposite end of deficit ideology. Educators who associate with structural ideology believe that disparity in education is due to structural barriers and the inequitable distribution of access and opportunities (Gorski, 2016). While there is recognition of structural barriers within Duckworth et al.’s (2007) and Duckworth and Quinn’s (2009) research, the questions involved with a grit test excludes aspects of poverty, instability and structural inequities. “By overemphasizing grit ... we tend to attribute a student’s underachievement to personality deficits like laziness” (Gorski, 2016, p. 383).

Systemic Barriers for Black, Indigenous and/or People of Color (BIPOC)

Students who identify as Black, Indigenous and/or people of color (BIPOC) are often at a disadvantage due to their unequal power structures with a predominately White culture. The racism and other compounding oppression they face at the macro-level of the society are too often replicated at the micro-level of the classroom or the school. Unfortunately, the overwhelming belief from politicians, policymakers and researchers is that students can succeed

and improve in school by focusing on changing mindsets, behaviours and attitudes, and without significant and meaningful considerations of systemic and structural barriers (Gorski, 2016).

In the examination of immigrant and non-immigrant students in German schools, Hannover et al. (2013) showed that immigrant students who did not identify themselves as part of the overall German school culture were not as successful as their native-born counterparts. The researchers describe the barriers of academic success being deeply rooted from negative peer interactions, stereotypes in the school environment and a vulnerability to discrimination. However, as evidenced by Hannover et al.'s research, students who are able to identify themselves within both ethnic and German cultures "outperformed students with purely ethnic school-related selves" (Hannover et al., 2013, p. 175).

Carter (2008) describes students who maintain their identity within the broader dominant society as cultural straddlers. Cultural straddlers have the ability to "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 heritages within the school context" (Carter, 2008, p. 469).

Consequently, the social environment and attitudes from people in the school are crucial for maintaining the success of students. Students who feel connected to their school and their fellow peers ultimately experience much more success because their social needs are met (Gore et al., 2016). In reviewing the work of Gore et al., the power of connectedness for all students is abundantly clear. Students who are able to form connections with other students, teachers and staff, in addition to being actively involved with the school have shown significant, and positive academic results.

While some researchers have made claims that extroverted students tend to experience positive grade outcomes (Caspi et al., 2006; Nofle & Robins, 2007), new research is rethinking introversion is perhaps a more desirable quality. Cain (2013) describes the different mindsets, motivation and personality characteristics between extroverted and introverted individuals. Cain claims that while society appears to have linked extroversion to success in different realms, introverted individuals are as likely to be as successful.

Income Disparity, Poverty and Family Structures

Educational performance, grit and student success appear to be linked to poverty. Although poverty impacts all students of all different backgrounds, social class intersects with race and racialized people are more likely to experience poverty. Therefore, this reinforces the need to consider how some students come to school with a certain set of privileges, whereas other students come to school with few (or none). Therefore, the concept of grit, without the consideration of structural inequities, may be flawed (Gorski, 2016).

Family structures are also a major consideration when discussing wealth and poverty in today's homes. Because family resources are finite, having many children in the household often reduces the amount of financial resources available to each child (Radl et al., 2017). It is also a

common occurrence that children could be raised in lone-parent households. Frank and Fisher (2020) report, “children living in lone-parent families experience a much greater likelihood of living in poverty than children living in couple families” (p. 24). Therefore, success is very much tied to income disparity, poverty and family structures.

Theoretical Framework and Methodology

Using Autoethnography

This research embraced autoethnography as a research method. Autoethnography originated as a merger of both autobiography and ethnography (Adams & Ellis, 2012). According to Adams and Ellis, when an individual writes an autobiography, they retrospectively select and write past stories, assembled using a recollection of memories. These researchers describe an ethnographer as one that enters a defined culture for an extended amount of time. Such ethnographers use their observations and experiences, such as “repeated feelings, stories and happenings” (p. 201), to write a thick and vivid description of a culture (Geertz, 1973). Then, ethnographers often connect their experiences and findings to formalized research. Ultimately, as Adams and Ellis describe, ethnography aims to describe the cultural practices happening within an insider culture so that it becomes familiar to the cultural outsiders.

Because autoethnography acts as an intersection between autobiography and ethnography, it provides a medium for a researcher/subject to draw upon their own experience, story and self-narrative (Savin-Baden & Major, 2013), and to critically reflect on oneself in the context of a culture (Adams et al., 2015).

Epiphanies and Mundane Moments

Life experiences can be marked by significant events, and such events can be classified as epiphanic. Denzin (2014) describes an epiphany as transformative moments of revelations that drastically alter the fundamental meanings of an individual’s psyche. These epiphanies “encourage us to explore aspects of our identities, relationships, and communities that, before the incident, we might not have had the occasion or courage to explore” (Adams et al., 2017, p. 7).

It is important to note that not all life experiences are epiphanic. Some experiences may be aesthetic in nature. Bolen (2014) describe aesthetic moments as moments of insignificance, in that, it “lacks transformative power” (p. 142).

Positionality

As a second-generation Vietnamese-Canadian teacher, I had to tackle many different life circumstances. I lived a childhood where I had a misunderstood sense of classism,

marginalization from a dominant society, social isolation and other systemic structures that made it incredibly difficult for me to be successful. My family did not have money growing up. My sister and I grew up in a poor, single-income household. Yet, while I did not grow up with much, my parents reinforced education as a way of escaping poverty. My success came from my parents' constant encouragement and deep sense instilling of grit in my sister and I. This made all the difference.

Data Collection

In a nutshell, I, as the researcher, was the primary instrument in data collection (Savin-
Baden & Major, 2013). Adams and Ellis (2012) say, “the [researcher] retrospectively and
selectively writes about meaningful experiences—epiphanies—that are made possible by being
part of a culture and from possessing a particular cultural identity [(positionality)]” (p. 199).

I drew upon three past epiphanic moments (with pseudonyms), as these experiences
drastically altered my understanding of the culture of grit and student success. I shared my
personal narratives in terms of a story, as structured by Denzin's (2014) structure and utilized
Geertz's (1973) notion of thick description to provide a cultural interpretation (Riemer, 2012).
This thick description helps build a sense verisimilitude by promoting deeper understanding of
the experiences and stories told (Adams et al., 2015).

At the time, my experiences with Caleb was negative. I taught Caleb for two years and,
during those years, it was likely one of the most difficult experiences I faced as an educator.
Caleb was a challenging student. He came from a poor, single-parent household. Through the
daily behavioural issues and challenges, I often butted heads with him. Every day was a
challenge and often I felt let down because many of my interventions resulted in failure. At some
point, I gave up on him and that was a difficult thing for me to do. However, when there is
adversity, there is opportunity. During the height of the COVID-19 lockdown, he slowly
progressed and, each day, worked very hard to be successful. He made it a point to overcome all
odds and adversities in his life and, as a result, significantly turned around and ended up far
exceeding his original goal of simply passing. What led him to this turnaround was important to
my understanding of success.

In the past decade, I have taught many first- and second-generation Canadians. While
many students have come and gone, I chose Adhira because her upbringing resembled a striking
similarity to mine. Adhira was a very hard-working and determined student. She appeared to
have all the qualities of being a gritty student. Although she experienced a significant degree of
success, her success was tied to her parents. At some point in Adhira's Grade 12 year, Adhira's
grades started to drop. She missed several classes, was inattentive in class and often displayed a
lack of focus on certain tasks. At the time, I thought it was a behavioural choice to succeed with
the minimal amount of effort. However, that was not the case. For Adhira, it was her role as a
translator, advocate and support person to her parents that I did not consider. The structural

inequities that impacted Adhira left me with many unanswered questions and I chose her story as part of the autoethnography.

Finally, parental expectations, students' mindsets and the relationships developed between the child, teacher and school have very profound impacts on student success. Out of all the students I have taught in my life, Violet showed me what being gritty truly is. When Violet first came into my class, she appeared to have many signs opposite to grit. While she tried her best to be successful, she appeared to demonstrate many neurotic traits. Violet's self-defeating words and attitudes sometimes caused her to experience major setbacks. It was not intentional for her to have these self-defeating attitudes, but they appeared to be a combination of previous traumatic experiences in similar mathematics-based courses in addition to possible unrealistic parental expectations that contributed into her negative sense of self. It was not necessarily changing Violet's mindset and beliefs that contributed to Violet's success. It was also changing Violet's mother's mindset and beliefs around success that ultimately led to Violet becoming one of my very top Grade 12 physics students. Therefore, a major part of my understanding of grit and student success came from Violet. Her difficult journey and her turnaround was something that, to this day, brings so much comfort to me. Therefore, having Violet as part of my autoethnography was a very easy choice.

Data Analysis and Interpretation

The literature review acted as the foundation to how I interpreted my data. Autoethnographers typically interpret their experiences by connecting their narratives and stories to the existing research and, in doing so, "use their academic training to interrogate the meaning of an experience" (Adams & Ellis, 2012, p. 199). Although the literature review acted as a guide to frame interpretations, "the key is to ensure that these frameworks do not force interpretations but [merely] serves as a way to view them" (Savin-Baden & Major, 2013, p. 457).

It was important to see how my autoethnography contributed to, critiqued, and extended current research. By connecting the literature review to my themes drawn from personal narratives and stories, I could determine whether "theory supports, elaborates, and/or contradicts personal experience ... [and whether it] provides a foundation on which to elaborate or provide a counter narrative to the meanings and implications" (Adams et al., 2015, p. 94) involved.

Findings

Deficit Ideology

Grit, Mindset and the Big Five Factors of Personality

Each student achieved different degrees of success and, while success is not an arbitrary bar that each person reaches, it is a fluid and ever-changing goal. Students with higher levels of

grit tended to have qualities that included ferocious determination, conscientiousness, self-control, sustained effort and a strong ability to persevere when challenges arise (Duckworth et al., 2007; Duckworth & Quinn, 2009; Hill et al., 2016; Hochanadel & Finamore, 2015; Muenks et al., 2017; Nofle & Robins, 2007; Rimfeld et al., 2016). While Caleb and Violet initially appeared to start off with very few, if any, of these qualities, in time, both of them eventually had many of these traits. Grit appeared to change daily, depending on the ongoing circumstances that each student faced.

Personality also played an important role on influencing grit. When Caleb and Violet started off in physics, they both appeared to demonstrate many fixed-minded traits. They appeared to have poor coping mechanisms, frequently blamed themselves or others and did not appear very resilient or adaptable. Adhira, on the other hand, appeared to possess many growth-minded traits. Such traits included taking responsibility for successes and failures, willingness to accept challenges and the ability to turn areas of weaknesses into areas for growth.

Grit is found to be closely affiliated with conscientiousness, more so than the other Big Five factors (Duckworth et al., 2007; Dumfart & Neubauer, 2016; Hill et al., 2014; Poropat, 2009; Rimfeld et al., 2016; West et al., 2015). This is representative of Adhira's experiences, who from the outset, appeared to possess many conscientiousness traits as described by Caspi et al. (2005) and Poropat. This success was consistent throughout her time in Grade 11 and 12, albeit her familial difficulties impacted her conscientiousness.

While it appears that conscientiousness is significantly tied to grit, literature from Nofle and Robins (2007) and Poropat (2009) demonstrate that agreeableness and low neuroticism are also factors. This is representative of what Caleb and Violet appeared to show. Both students appeared to have significant vulnerabilities to anxiousness, stress and demonstrated very poor coping mechanisms. Through many interventions and supports, both eventually developed better coping skills, reduced their neuroticism and began to develop other conscientiousness traits. While extraversion also had some relevance to the success of all three students, Violet appeared to be very introverted and yet ended up being very successful.

Implications of Intrinsic and Extrinsic Motivation

At the beginning of Grade 11 Physics, both Caleb and Violet seemed to demonstrate a low degree of grit, poor academic performance and a fixed mindset. These attitudes appeared to have had a detrimental impact on long term academic success. To combat such poor mindsets, examining what made Caleb and Violet motivated was important. For Caleb, his journey in physics was difficult. Caleb was often motivated through many extrinsic rewards. While extrinsic motivators helped encourage and stimulate growth in Caleb, it was often very short-lived. Both Adhira and Violet were not extrinsically motivated like Caleb.

Both Caleb and Violet appeared to suffer from a high degree of neuroticism. I believe that their neuroticism strongly impacted their sense of self-worth. This level of vulnerability resulted in many negative attributes, from Caleb easily giving up and to Violet saying many self-defeating words. Frequent positive and meaningful reinforcement was needed to encourage and

motivate them. Through such words, the intention was to build on Caleb's and Violet's sense of self-worth. Through this action, I noticed their traits resembling neuroticism slowly disappearing. Eventually, as evidenced by their slow, but progressive growth, they were motivated to take on small but challenging goals.

In reviewing Ryan and Deci (2000), although feelings of self-worth have connections to internal regulation, such feelings are connected to extrinsic motivation because of an external locus of control. Cultural influences are another external locus of control that needs to be recognized. Although Adhira was happy to receive positive reinforcement, I believe the driving force that motivated her to succeed was her Indian culture. In her culture, failure was not an option and, therefore, there was always this hidden pressure impacting Adhira. The traits of hard work, tenacity and perseverance were something that she ate and breathed, and success for her appeared to be hinged on this constant pursuit for satisfying her Indian roots. Tying Adhira's Indian culture to the Big Five factors, it appears that, as we understand more about human differences, diversity and equity, we may see that some cultures may value certain personality traits, including motivation, more than others.

As it is for most learners, success was addictive for Caleb, Adhira and Violet. As Caleb, Adhira and Violet saw higher levels of academic success, they all acted with a sense of independence and autonomy. This reinforced their internal locus of control and, therefore, promoted a high degree of intrinsic motivation (Ryan & Deci, 2000). Caleb started to develop many intrinsically motivated traits when schools went on an online-learning approach, due to the COVID-19 pandemic. Caleb controlled his environment. He did not have to worry about other people watching him; he controlled his pace and progress and did not need to be micromanaged. Through such independent actions, he saw significant academic success.

Like Caleb, Violet started to see even more progressive growth and success as she took on more independent actions, initiatives and proactive strategies. Through such effort, she not only improved in areas of deficiencies but also became one of the highest achieving students in Grade 12 Physics.

The greatest strides in Caleb, Adhira and Violet's success came because of independent actions and complete autonomy. For Caleb and Violet, extrinsic motivators were less and less important, and intrinsic motivators ultimately took over as their driving force for major and transformative change. While challenging familial issues occurred for Adhira, she maintained consistent success because of her own intrinsically motivated choices (e.g., willingness to extend her abilities). This, I believe, is major. The fact that she was trying to manage both her academics and her parents' health circumstances truly demonstrated a high degree of grit in both her academic and personal realms.

As a result of Caleb's, Adhira's and Violet's intrinsically motivated traits, they demonstrated a high degree of grit as suggested by Von Culin et al. (2014). It is important to note that, without the extrinsic motivators to initially stimulate and drive Caleb's and Violet's success, they would not be as successful as they would be today.

Structural Ideology

Implications of Social Structures

Some students come into school having a certain set of privileges when compared to others. As a result, issues around social, income and familial structures are the ongoing factors that impacted grit and student success for all three students. Prior to this research, as an educator, I was involved in many student interventions to address student failure. Many school-led strategies in overcoming failure have been to address certain learning deficits. This is the deficit ideology that Gorski (2016) discusses.

While addressing learning deficits did help some, in reflection, I do not recall it significantly improving my students' academic skills. In fact, many of my students either maintained the status quo or briefly improved then, went back to their original routines. I now believe it was because no one, including I, truly considered the negative implications of the structural deficits such as poverty, familial structures, race, ethnicity, culture and social status had on students. By only adhering to the ideology around changing personality, work habits and effort, we consciously or unconsciously ignore the structural deficits.

Social structures played differing roles, depending on the individual. Although Violet was socially isolated and did not have other peers to rely on for help, it did not appear to be a major contributor to her success. Even at her highest point of academic success, Violet did not socialize with many individuals. However, for Caleb and Adhira, their context was significantly different.

One of the significant factors that negatively impacted Caleb's grit and academic success was his inability to form meaningful and strong relationships with other students in his physics class. As Hannover et al. (2013) describe, one of the barriers to academic success is negative peer interactions. While many social bonds already existed among students, Caleb did not appear to have connections to many of these students.

This was different for Adhira. Being a cultural straddler was another factor that likely impacted Adhira's grit and success in physics. Because of Adhira's ability to adapt and blend in between her insider and outsider cultures, she was able to make meaningful connections and minimized any negative peer interactions.

While Carter (2008) uses cultural straddlers in terms of racial and ethnic heritages, I believe it can also be applied to Caleb. One of the major difficulties that Caleb faced was his inability to adapt and blend in between the culture of his social group and the culture of the physics classroom. Caleb always wanted to maintain the appearance of acting tough and avoided looking vulnerable, even at the expense of success. Perhaps, within his social group, being perceived as smart completely contradicted the trait or symbol of being cool. Perhaps, by doing well in school, it would have diminished his standing within his social group. It is important to recognize that, while the COVID-19 pandemic resulted in Caleb being forced to do school online, it completely removed the issue of being a cultural straddler. Once Caleb continued to do

school online, major strides in grit and academic success occurred because Caleb was able to eliminate the social pressures and hide his success within his social group.

Implications of Income and Familial Structures

Family income also appeared to have significant impacts on individual student's grit and success. Caleb lived in a lone, single-parent household. He appeared to have significant economic disadvantages, as demonstrated by how he came to school every day with limited learning resources. While many students sported the latest technological gadgets, Caleb utilized a broken, but usable, older generation iPhone. He lacked access to a laptop, which was problematic when it came to enhancing at-home learning. When the COVID-19 pandemic arrived, it exposed significant economic disparity for students. Those who had many economic resources maintained or continued to excel in their schooling. However, students who had little to no resources suffered as a result. For Caleb, if he did not have the Internet or the use of his iPhone, he would have failed, as a result. This stands in contrast to students like Adhira and Violet, who both came to school every day with the appropriate resources needed for success. Therefore, for those who have privilege, such students have a higher likelihood of experiencing success.

Family dynamics played a critical role in grit and student success. In examining Violet's story, parental expectations played a key role in Violet's sense of self-worth, possibly impacting Violet's high levels of apparent neuroticism. Violet derived part of her self-worth from what other important people in her life thought of her. While Violet's mother wanted Violet to excel, constant pressures, high expectations and perceived parental disappointment seemed to weigh heavily on Violet. Although it was not one thing that led to Violet's overwhelming success, I believe part of it had to do with her mother's change on what it means to be successful. When she changed that mindset, perhaps parental pressure and demands waned. As a result, Violet demonstrated fewer neurotic traits, perhaps because Violet did not have to worry about what her mother thought of her.

Much of the time in Grade 11 and 12 Adhira maintained a high degree of academic success. The moment her parents became ill and needed Adhira as a translator, everything abruptly changed. Adhira's greatest barrier to her grit and academic success was the difficulty balancing both scholarly commitments and her obligations to her sick parents. In many instances, she had to assume a very adult role in her family while, at the same time, trying to complete her academic studies. She appeared overwhelmed by the responsibilities and worries placed upon her. As a result of such obligations, she either missed class, or came late. Adhira's story demonstrates that non-controllable factors, such as family dynamics and parental obligations can have negative impacts on students' academics, grit and chances of high-level success. In my opinion, if Adhira's parents did not depend on Adhira, I strongly believe she would have maintained her upward trajectory of growth.

Finally, through stories like Adhira and Violet, familial dynamics played a contributory role into their grit and success. From my observations I believed Caleb lived in a family where

economic barriers existed. In my failed attempts to collaborate with Caleb's mother on supporting Caleb, I believe she was unable to do so, as she potentially struggled to maintain the household. Trying to balance employment with running the household can be a difficult and overwhelming thing. While Violet's and Caleb's parent offered different levels of support, the parental guidance and involvement is significant in steering students onto the right pathway for success.

Recommendations for Practice and Conclusion

Recommendations for Practice

Based on my time teaching Caleb, Adhira and Violet, their experience seems to suggest to me a change is needed in how education is delivered. While I understand that the government has finite financial resources to spend on education, I have to consider the number of students who do not graduate high school or post-secondary education. I also must consider the level of disengagement that occurs in our classrooms because the education system does not do a good enough job in addressing the disconnect between students and schools, improving students' sense-of-self and developing their personality profiles.

It became apparent that, once my students trusted me, a mentor-mentee relationship could be established. This trust was sometimes difficult to obtain because it required a genuine and nurturing relationship to occur. This relationship required time and effort, with time being an absolute luxury considering the large class sizes, administrative burdens and increasing levels of need in the classroom. Sadly, sometimes I had to pick and choose who I could help. But, once the relationship began, I started to notice students changing their personality, mindsets and academic behaviours. For some, students progressively improved and started to show signs of academic success. While some did not experience immediate success, the lengthy and valued relationships allowed me to foster long-term gains, much like I had experienced with Caleb. There is an absolute need for school systems to build in this necessary time for teachers to develop such mentorship experiences with all their students.

It is important that educators, politicians and policymakers do not fall into the deficit ideology trap. It seems that most, if not all, interventions done in school to date have been to address the learning deficits that students' experience. While there are some who do consider structural factors that have impacted student achievement, any decisions involving student success must have both lenses in mind. Without this consideration, such actions may be doing a disservice to students who are often victimized by unequal power structures and systems of dominance. Perpetuating meritocracy can be damaging and dismissive of the very real issues students face.

Conclusion

Grit is circumstantial. If one lives in a world where all students not only have their socioeconomic and sociocultural needs met, but are also living on a level playing field, grit has a major role to play. However, we do not live in this type of world. Our world is complex. Therefore, students grappling with different life circumstances will require a teacher's awareness and consideration of such systemic and structural barriers. Once this is acknowledged, grit may be used to help educators facilitate and improve on their pupils' weaker traits, as reflected from their pupils' grit scores.

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