Discovering Grit: 
Getting Gritty About Making Students Grittier

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August 5th 2016
Teachers have long wondered about what makes some students successful when others are not? They have experienced frustration when watching a student who is clearly intelligent – flounder and give up too easily. This paper seeks to find out what experiences make gritty students turn into gritty, successful adults. Angela Duckworth defines grit as, “Passion and perseverance to achieve very long-term goals.” (Duckworth, 2013) This study used the Short Grit Scale (Grit-S) and compared it against qualities discovered in the themes threaded throughout the literature concerning modern grit research. The five qualities this study sought to connect with grit were: belonging, ability, personal value, influence and growth mindset. The self-report survey completed by 241 participants, found that the perceived qualities of belonging and ability, and the mindset known as growth-mindset had a moderate effect on grittiness. The study found that a person’s perception on their own value and their ability to influence their own lives had a positive impact on their grit level. In the final chapter the researcher made some recommendations as to how teachers can apply the knowledge gained from this research into best teaching practice.

Key words: Grit, passion, perseverance, education, belonging, ability, personal value, influence, growth-mindset.
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Chapter 1 - Introduction

Purpose of the Study

All classroom teachers have experienced the frustration of watching a student who is clearly capable fall behind. It seems, once this happens, it is a slippery slope to what appears to be ambivalence and eventually academic failure. What is it that makes students succeed? It can't be intelligence or natural talent; too many brilliant students dripping in talent fall by the wayside when the going gets tough. It is grit.

“Grit is passion and perseverance for very long term goals... Grit is living life like it's a marathon, not a sprint” (Duckworth, 2013). Studies have found there is little relationship between achievement and IQ (Duckworth, Matthews, Kelly, & Peterson, 2007). Grit is the best predictor for success. “Grittier kids were significantly more likely to graduate.” (Duckworth, 2013). Gritty children work harder and longer than their less gritty peers, and as a consequence, perform better (Duckworth et al., 2007). Ericsson, Krampe and Tesch-Romer (1993) found that it takes many years of practice to achieve excellence. They argue that it takes at least ten years of deliberate practice to achieve mastery level of a skill in a specific domain (Ericsson et al., 1993, p. 369). It is not about how smart these children are, it’s how long they can maintain a drive to reach their goals.

Students are being asked to learn more than ever, and to stay in school for longer than their parents and grandparents did. In 1900, students only attended school until the age of nine or ten. Many provinces initially instituted a school leaving age of 12 in the early 20th century (Oreopoulos, 2005). However, currently, most provinces require students to stay in school until the age of 16 and some provinces are considering raising that age to 18 (Oreopoulos, 2005). In addition, the message that secondary education is not enough to live comfortably is clearly sent to secondary students in an attempt to
motivate them to attend yet more school after they graduate. Many students are required to be in school for much more than ten years. Whether they choose to be there or not, this meets Ericsson et al.’s (1993) criteria of mastery; the hope is that some of these skills—grit included—will transfer to real life.

This paper examined the question of whether we, as educators, have given our children the tools with which to reach mastery of the skills being taught. Developing grit in all of our students could provide them with a significantly improved opportunity to achieve mastery of the skills we are teaching. The literature provides some ideas on how to build grit—

But we need more… That's the work that stands before us. We need to take our best ideas, our strongest intuitions, and we need to test them. We need to measure whether we've been successful, and we have to be willing to fail, to be wrong, to start over again with lessons learned. In other words, we need to be gritty about getting our kids grittier. (Duckworth, 2013, 5:28)

**Justification of the Study**

There has been a lot of research surrounding the correlation between students’ level of grittiness and their academic success. It has been proven that IQ alone does not dictate grades (Duckworth & Seligman, 2005). The willingness to work hard for long periods of time contributes to a student’s success in a significant way (Duckworth et al., 2007). There has not been much research into what it is that makes children gritty or how to increase grittiness (Wolters & Hussain, 2014). However, some truly promising research into increasing grittiness has been done by Carol Dweck. She had some interesting results in analyzing the type of feedback teachers give students (Kamins &
Dweck, 1999). Choosing to praise challenge and effort can lead to a culture of risk taking and promote the idea that intelligence is fluid (Dweck, 2010). This is called having a ‘Growth Mindset’ (Dweck, 2007).

While Dweck’s theory of Growth Mindset is promising, if this is all we have as educators for ammunition against complacency in our students, we are bound to fail too many of them. We need to make the connection between a child’s past experiences, which integrate to build the quality of grit. Teachers need to use that connection to create a model that we can use to help others develop this valuable trait. This study seeks to discover common experiences among gritty individuals and to build ideas and models that can be crafted by teachers to provide similar experiences for our current and future students - in the hope of fostering grittier students, and ultimately, adults.

This paper examined the theories of many researchers about what makes students successful and attempted to link these theories to grittiness. Upon analysis of the literature, several themes emerged. Sagor (1996) clustered the themes under five main ideas; He said that gritty children feel like part of a community - belonging, they have experienced success - competence, they feel like they make a difference - usefulness, they feel empowered – potency, and they are positive thinkers – optimism. Further simplifying and overlapping Sagor’s five themes are the aboriginal teachings regarding the Circle of Courage (Brokenleg, 2012). This model explains that children need to feel significant in their importance to others – belonging. They need to feel capable and talented – mastery. They want power and control over their lives – independence. And finally children need to feel valued by being valuable to others – generosity (Brokenleg, 2012). Further expanding on these two men’s work is the work of Von Culin, Tsukayma
and Duckworth (2014) who said that there are three aspects that contribute to grittiness. She said that in order to be gritty we must be happy and to be happy we must experience “pleasure, engagement and meaning” (Von Culin, Tsukayma, & Duckworth, 2014, p. 307). This researcher took the theories of Von Culin et al., Dweck, Brokenleg, Brendtro, and Bokern (2002), and Sagor to create questions (Appendix A) focused on five themes or qualities which asked what experiences participants went through to either result in a gritty adult or a more helpless, unhappy one. The themes the study used were: belonging, ability, personal value, influence and growth-mindset.

Grit itself, defined as a person’s ability to persevere to achieve very long term goals (Duckworth, 2013), has proven to be very easily and reliably measureable. The development of the Grit Scale (Grit-O) and the Short Grit Scale (Grit-S) (Duckworth & Quinn, 2009) has opened an opportunity for researchers to use the tool to predict what it is that makes people gritty. By comparing grit scores to outcomes like retention in a difficult West Point training programme, success in the National Spelling Bee and GPA in the Psychology department at Stanford, Duckworth’s Grit Scale has proven a reliable tool for predicting success outcomes (Duckworth & Quinn, 2009). This study examined a facet that this tool has not yet been used to explore. This study asked what is it that built grit in you? It asked, what past experiences created the level of grittiness you currently have?

**Research Question and Hypothesis**

The question this paper asked was: *Do certain experiences help people develop grit? If they do, can we use this knowledge to better develop this trait in our children?*

What experiences have individuals gone through that increased their grittiness, and what
experiences have made them less gritty? Assuming it is the culmination of experiences that creates a personality, it was important to this researcher to balance the analysis to reflect the whole experience of life. In order to do this, the survey created by the researcher (Appendix A) asked participants not only to reflect on their lives within the education system, but on their lives at home. The next step was to analyze what their qualities and experiences brought to increase their level of grit with the purpose of giving educators and parents the tools to make their children grittier. This was accomplished by comparing the mean grit score of individuals who answered similarly to the survey’s polar questions, which were designed based on extensive research. The hypothesis this paper sought to prove was, *If we examine the grittiness of different adults, it will be possible to determine factors that increased and decreased individual grittiness during their youth.*

**Definition of Terms**

Angela Duckworth, one of the foremost researchers on this topic, defined *grit* in her New York, 2013 Ted Ed talk. She said, “Grit is passion and perseverance for very long term goals... Grit is living life like it's a marathon, not a sprint” (2:58). Grit has two facets, perseverance of effort and consistency over time (Von Culin, Tsukayma, & Duckworth, 2014). Grit is something that society values. We recognize it in others and ourselves. “Grit is not about being hard on yourself. And it's less about what you accomplish than what you become on the way. Grit is who you are before it reveals itself in what you do.” (Carney, 2014, sec. Growth Mindset is the Hidden Key). True grit is really about enjoying a challenge and seeing adversity as something that will make you a better person in the long run.
The short grit scale (Grit-S) is an eight-question Likert scale survey that asks questions to measure “Consistency of Interest and Perseverance of Effort.” (Duckworth & Quinn, 2009, p. 172). It gives each participant a score out of five with one being not very gritty and five being very gritty (Duckworth et al., 2007).

Experiences can be defined as life events the respondents recall, that shaped the people they are today. It refers to large life-defining moments as well as the small daily tedium that forms our personalities.

Growth mindset is a concept developed by Dweck which follows the belief that those who believe it is possible to increase their intelligence through challenge are less likely to lose motivation and give up than their peers, who view intelligence as a fixed state. Individuals who believe intelligence is fixed are afraid of failure because they judge their ability based on the outcome of their effort instead of the effort itself (Dweck, 2008).

Brief Overview of Study

In addition to Duckworth’s eight question five point Likert short grit scale, this mixed methods study asked ten polar (yes/no) questions relating to the big ideas Brokenleg, Brendtro, Bokern, Von Culin, Tsukayma, Duckworth, and Sagor theorized are predictors of grit. The terms used by these researchers: community, belonging, significance, success, optimism, competence, mastery, talent, capable, pleasure, engaged, useful, generous, meaning, value, power, control, independence and potency were collapsed into four categories of qualities titled Belonging, Ability, Personal Value, and Influence. These categories were then added to Dweck’s theory of Growth Mindset. The study asked two questions about each of these qualities. One question was designed to be
positively associated with grit and the other was negatively associated with the concept of grittiness.

The two questions relating to Belonging asked, ‘Do you feel you do not belong to your community?’ and ‘Did you regularly go to school when you were a student?’ The questions relating to Ability asked, ‘Did you participate in activities outside school because it is fun?’ and ‘Do you believe you received bad marks at school?’. The third category titled Personal Value asked, ‘Do you feel there are not people in your life who need you?’ and ‘Do you volunteer to help others?’. In regard to Influence the participants were asked, ‘Do you feel you have control over your life?’ and ‘Do you think you are independent?’ Finally, concerning Growth Mindset the students were asked, ‘Do you think it is possible to get smarter?’ and ‘Do you believe you are good at something because you are naturally talented?’

The questions were designed to be general and positively and negatively related to constructs of grit to avoid social desirability bias and include aspects of life both inside and outside school. The grit score of the participants was compared with the answers given to determine what qualities and experiences influence various levels of grittiness. There was also an open-ended question at the end of the questionnaire which allowed respondents to further elaborate on what experiences they feel had made them gritty. That information was used as qualitative data to further examine what experiences influence grit.
Chapter 2 – Review of the Literature

Introduction

Angela Duckworth ends her 2013 TED talk by stating, “We need to be gritty about getting our kids grittier.” (Duckworth, 2013, 5:50). Earlier in her talk she also acknowledges, “How little we know – how little science knows about building [grit].” (Duckworth, 2013, 4:08). There are several researchers who have gathered empirical evidence, which relates to the development and/or fostering of grit. In general terms they fall under three major themes: growth mindset, independence and self-efficacy, and belonging. This chapter seeks to show that few have yet to combine these three themes into a single study –which seeks to examine the multiple factors that contribute to a person’s grittiness. The chapter will finally examine the literature, which address the importance of building grit in today’s youth in order to maximize success in academics and life.

Growth Mindset

By far the largest body of research connected to the development of growth-mindset stems from the champion of the topic, Carol Dweck. She has proven in a multitude of studies that a student who believes he or she cannot improve his or her intelligence through effort (fixed-mindset) will avoid challenges. These students believe that if they try and fail, they have been measured, and found wanting. They have the perspective that the mere act of needing to try hard, insinuates they are not intelligent enough to complete the challenge with a fraction of their intelligence. Those with a fixed-mindset feel that if they need to apply themselves, then they have exhausted their fixed
level of intelligence and simply do not have *what it takes* to complete the task. A fixed-mindsetted person feeds their ego through success and therefore must avoid failure at all costs (Dweck, 2007; 2010). “Many adolescents mobilize their resources not for learning, but to protect their egos.” (Dweck, 2006, p. 58).

However, those who have a growth mindset have the schema that they can improve their intelligence through effort. These individuals value failure even more than success. They see a challenge as an opportunity to grow and learn – ultimately improving their overall intelligence. Trying hard and facing diversity are not scary prospects for this type of person. Individuals who lean more toward growth-mindset see effort as the path to mastery. They take criticism willingly as a learning opportunity. They also see the success of others as inspirational instead of a threat toward their own ego. (Dweck, 2006; 2007; 2010; Yeager & Dweck, 2012). “[Students with growth-mindset] know the setbacks will happen. So instead of beating themselves up, they ask, “What can I learn from this? What will I do next time when I’m in this situation?” It’s a learning process – not a battle between the bad you and the good you.” (Dweck, 2006, p. 241).

Dweck has also extensively researched some ways in which parents, teachers and anyone connected to youth development can help to propagate a growth-mindset. First of all, it is extremely beneficial for the teacher to have growth-mindset themselves. “When teachers believe in fixed intelligence… it is a self-fulfilling prophecy. However, when teachers hold a growth-mindset, many students who start out lower in the class blossom and join the higher achievers.” (Dweck, 2007, p. 10). Other studies have also come to the conclusion that teachers can have a profound effect on the mindsets of their students. “Teachers’ mindset beliefs are likely to influence their students’ mindset beliefs through
the teaching practices they employ as well as through their interactions with students” (Shumow & Schmidt, 2015, p. 4). This is why it is important to shift the educational schema from one where the belief that IQ is a fixed genetic trait (Winfield, 1994) to one where the belief is that intelligence can be changed through effort (Dweck, 2010). Dweck also found that feedback and praise could directly influence the child’s mindset. Many parents believe that they should praise their child’s intelligence. However, Dweck argues this is not true (Dweck, 2007). She found that praising intelligence led to the development of a fixed mindset, while praising effort led children to develop more of a growth mindset (Dweck, 2006; 2007).

Feedback Study

Kamins and Dweck conducted two studies in 1999 and reported their results in a single document titled *Person Versus Process Praise and Criticism: Implications for Contingent Self Worth and Coping*. They wanted to test the theory that a person’s self-worth could be affected by the type of feedback they were given after the participant experienced a setback or challenge. They gave the participant one of three different types of feedback: person, outcome or process.

The phenomena these randomized to groups post-test quantified studies were examining were how the type of feedback received affected a child’s ability to persevere and find success in later trials. The first study examined four types of critical feedback relating to the product that was produced, how the situation rated their self-worth and emotional well being after the test and finally how the child would react when faced with a similar situation in the future. The second study examined all four of these post-tests where positive feedback was given. “We hypothesized that person – or trait related
feedback, because it involves a global assessment based on a specific behavior [sic] or performance, would teach children to measure themselves by their performance and would thus foster more helpless reactions to setbacks.” (Kamins & Dweck, 1999, p. 835)

Researchers used relatively controlled role-play exercises in a lab setting where even the researchers carrying out the exercises didn’t know the predictions or hypothesis of the studies. This provided better internal validity as the research was less likely to be influenced by experimenter effects. The stories were acted out by teacher-dolls and student-dolls to remove the students from real criticism. However, the studies did rely on the fact that students had a strong sense of empathy towards the student-doll after feedback was provided, as the measurement tools used after the studies to measure such things as self-worth asked questions relating to how ‘the doll’ felt, how it would react and how it would rate the product of their efforts. Although it is likely an ethics workaround, this methodology raises an interesting question as to the reliability of the results. External validity was difficult to assess, as the researchers did not indicate whether the children were randomly selected, a convenience sample, or representative of the target population. The studies ultimately found that in both positive and critical feedback situations that resilience, self-worth and emotional state were all significantly higher with process feedback when compared to feedback directed at the child’s traits (Kamins & Dweck, 1999). This finding confirms Dweck’s argument that we must not praise the child’s intelligence when they are successful, but to praise the effort that the child committed to achieving success, as the situation dictates – failure.
Independence and Self-Efficacy

In order for youth to experience grit they must be able to believe they can be successful, useful, potent and competent (Sagor, 1996). These needs are closely linked to the theory of growth-mindset and belonging. If a student rises to a challenge and masters a new skill, he or she will grow their own feelings of self-efficacy. They will feel like they can have a real influence on their lives, and they will feel like they can be of use to those around them (Brokenleg, Brendtro, & Bokern, 2002; Dweck, 2007; Sagor, 1996). By providing time and guidance, teachers and parents can allow children to learn skills to the point of mastery. This will allow children to learn the value of setting their own goals and will also increase their personal self-esteem (Dweck, 2006; Sagor, 1996).

“When the child’s need to be competent is satisfied, motivation for further achievement is enhanced; deprived of opportunities for success, young people express their frustration through troubled behaviour or by retreating in helplessness and inferiority” (Brokenleg, Brendtro, & Bokern, 2002, p. 449). Brokenleg et al. (2002) explain in their book Reclaiming Youth at Risk that First Nations peoples designed games, chores and activities to allow children to experience adult-like learning situations in a setting where they could experience success. Children were given scaled down bows and arrows much the same way we have small basketball nets at elementary schools. They were given art projects that encouraged motivation out of group involvement. They were cherished for working hard:

From the earliest years parents nourished the mastery of responsibility: I was asked to do little errands and my pride in doing them developed. Mother would say, “Son, bring in some
wood.” I would get what I was able to carry, and if it were but one stick, Mother would in some way show her pleasure. (Brokenleg, Brendtro, & Bokern, 2002, p. 454)

In contrast, Tough (2013) speaks of the need to experience failure in order to truly value success. He acknowledges that adults have an innate need to provide for our children. We want to make them likely to succeed and experience success. However, he argues that this belief doesn’t raise the ceiling of possibilities for children but simply “raise[s] the floor” (Tough, 2013, p. 85). It makes them less likely to experience failure. Some believe this to be a positive thing. However, by depriving students of the struggle we limit their ability to really experience independent success (Dweck, 2006; Tough, 2013). Teachers argue that this challenge must be moderate, that it is important for students to be able to see the light at the end of the tunnel in order to experience motivation in order to move forward (Sagor, 1996). It appears most agree however that, a challenge – large or small- helps build grit (Brokenleg, Brendtro, & Bokern, 2002; Duckworth, 2013; Dweck, 2007; Sagor, 1996; Tough, 2013).

A lack of independence can severely hamper one’s motivation to succeed and vice versa. The feeling of powerlessness leads to learned-helplessness. This is “the belief that outcomes are unrelated to one’s actions” (Duckworth, Quinn, & Seligman, 2009, p. 541). In order to make children feel independent, we need them to believe they are empowered to make a difference within their own lives and within their community. One of many ways to encourage this in schools is through goal setting (Sagor, 1996). Goal setting is again linked to success. A wise person sets a goal and breaks that major goal into smaller steps. We do this so that success is experienced and motivation stays high (Tough, 2013).
We can carefully choose our language to encourage positive movement within these steps (Dweck, 2007), but ultimately, to increase the child’s locus of control we must let them set their own goals for mastery (Sagor, 1996; Shumow & Schmidt, 2015).

This study asked two questions to confirm what the previous researchers predicted. Grittier individuals should have a perception that they are influencing their own lives in a meaningful way. By asking, “Do you think you are independent?” and “Do you feel you have control over your life?” In the current study, the researcher explored whether grittier people do in fact possess feelings of self-efficacy and independence.

**Belonging**

In many traditional First Nations cultures children were not merely the responsibility of their parents and immediate family. They were nurtured and guided by all members of the tribe. All adults took on the duty to teach the young (Brokenleg et al., 2002). “Kinship in tribal settings was not strictly a matter of biological relationships, but rather a learned way of viewing those who shared a community of residence” (Brokenleg et al., 2002, p. 427). At first, it may be difficult to see how this cultural value is related to grit development. However, when we examine the motivation for this cultural value we can begin to see the connection. Brokenleg et al. (2002) went on to state, “The ultimate test of kinship was behavior [sic] not blood: you belonged if you acted like you belonged” (p. 427). Children need to know they are valued members of the community in order to be motivated to work towards its goals (Sagor, 1996). If this doesn’t happen, “[q]uite often the gang becomes an artificial source of spirituality. It provides substitute sources of belonging which traditional communities worldwide have provided throughout history” (Brokenleg, 2012, p. 9).
Relationships within the community were based on respect and a minimization of social friction. Bringing someone into one’s social circle motivated the new member to show concern for the others within the circle. If someone wasn’t acting in an acceptable manner, they were gently guided by community members to correct the unacceptable behaviour. If the behaviour wasn’t corrected, then they were no longer welcome in the community. This support system gave youth motivation to behave responsibly and respectfully to all within the community - including themselves and the natural environment. Growing “cross-generational alienation” (Brokenleg et al., 2002, p. 440) in First Nations communities has had an adverse effect on youth’s motivation to adhere to the values of the community. If this alienation could somehow be reversed, we would have more First Nations youth working to become respected members of the community (Brokenleg et al., 2002). The need to belong is a strong one. The idea is to have other cultures within Canada, take the circle of belonging and use it as a tool to motivate youth to develop passion and perseverance for very long-term goals – grit.

Winfield (1994) conducted research, which backed up Brokenleg’s theory (2012) connecting grit and belonging. She found that, “[Gritty] children… tended to have parents who are concerned with their children’s education, who participate in that education, who direct their children’s everyday tasks, and who are aware of their children’s interests and goals” (Winfield, 1994, p. 2). She also noted that gritty children had “…at least one significant adult in their lives” (Winfield, 1994, p. 2). Sagor believes students must feel supported and encouraged “regardless of achievement level or ethnicity” (1996, p. 41). When children are facing difficult moments in their lives (such as transition from childhood to adolescence and from adolescence to adulthood (Nettles
& Pleck, 1993), supports provided by; family, school staff, peers, community members and other family members, can have a valuable protective factor (Winfield, 1994). Nettles and Pleck (1993) found that this protective factor can have positive influences on self-esteem and can protect minorities from ‘system blame’ – the belief that the system is built in counter-service to minorities. This protective factor can stop youth from making decisions that will negatively impact their lives in the long run (Brokenleg et al., 2002).

**Why Grit?**

There is a shift in the education movement toward a competency based or mastery based system where individual students are working toward individual learning goals (Horn, 2013). Horn (2013) argues against the point that if we do not solve the problem of intrinsic motivation and grit, then designing these individual learning plans will not improve academic success. He says that these types of mastery based (not time based) curriculum programs have grit development built right into them. By not allowing a student to move on until they have truly mastered a concept then grit will develop intrinsically (Horn, 2013). He does admit that there are programs that do this better than others. It is up to the teachers to provide guidance and reassurance that they will eventually experience success. Older academics argued that truly gritty people do not need a cheerleader; they will put their heads down and work until the job is done - taking little joy in the completion of the task, but finding happiness in the task itself (Galton, 1892).

argues that those who have talent are not necessarily successful (Von Culin, Tsukayma, & Duckworth, 2014). A talented individual may start out more successful than his or her peers at first. However, even a talented beginner will not become a master without perseverance and passion towards long-term goals (Duckworth & Seligman, 2005). It has been discovered that grit is unrelated to IQ (Duckworth, Matthews, Kelly, & Peterson, 2007), in fact it may even be inversely related (Duckworth, 2013). Some have argued and tested the theory that “more educated adults [are] higher in grit than… less educated adults of equal age” (Duckworth et al., 2007, p. 1091). It could be that grittier people end up seeking more education. However, it has yet been unproven that more education promotes grit. It is for these reasons that grit is a worthwhile study in the context of the British Columbia schooling system and directly influenced the researcher to ask an optional question in her study reporting on participant’s highest level of education obtained.

**Grit Study**

Duckworth, Matthews, Kelly and Peterson conducted a study called *Grit: Perseverance and Passion for Long-Term Goals* in 2007. They combined six quantitative studies to study the importance of one trait: grit – to success outcomes. They studied several groups of adults (two groups of similarly aged undergraduate groups, two cohorts of Ivy League undergraduates, two classes in the United States Military Academy (West Point), and 175 students who ranked in the National Spelling Bee and found that grit was not related to IQ but was a good predictor of success. To establish the level of grittiness in these studies, which included over 5000 people, Duckworth et al. used the long grit
scale Grit-O. This is a 12 question self report survey, which is very similar to the eight question Grit-S survey used in the current study.

The first two studies examined the “… predictive validity of grit … by its association with higher levels of lifetime schooling among individuals of identical age.” (Duckworth et al., 2007, p. 1090) and asked “… is there evidence that grittier individuals make fewer career switches than their less gritty peers?” (Duckworth et al., 2007, p. 1093). Both studies affirmed the prediction that grittier people go to school longer and switch careers less often. The third study considered, “… whether grit was associated with cumulative GPA … using SAT scores as a measure of general mental ability.” (Duckworth et al., 2007, p. 1093). Not only did the study find that grittier individuals performed better at the highest academic levels, but that grit was inversely related to talent. The fourth and fifth studies followed two cohorts (2004 and 2010) over intense summer training. Duckworth et al. predicted grittier individuals would be more likely to make it through the summer session. Again, the prediction was held true for both cohorts. The final study followed 175 students to the National Spelling Bee. Duckworth et al. wanted to test if grit was strongly related to how many rounds in the competition were made. When controlling for age differences, they found that grittier individuals did perform better at the competition and that the effect of increased practice on the weekends (which was self-reported) provided improved results at competition. (Duckworth et al., 2007)

There were several weaknesses in the studies that were observed. Firstly, the heavy reliance on many self-reporting tools left the conclusions liable to heavy social desirability bias. Secondly, as the paper also points out, the reflective nature of the grit...
scale makes the assumption that past behaviour will predict future behaviour, which
doesn’t line up with Dweck’s concept of Growth Mindset. Finally, the groups being
studied were not representative of the general public. They were all easily in the top of
their fields. This doesn’t lend to transferability or generalizability among the normal
population.

Despite the weaknesses, the validity of all six studies was without question. It could
be inferred that if grit made a large difference in success among the most talented, then
grit is even more important when untalented people need to overcome abundant setbacks
(Duckworth et al., 2007). It is the one tool the general public can rely on. Also, the fact
that all six studies found in favour of the value of grit gave the paper even more power
than would any one study standing alone.

In these studies, Duckworth was using grit as a predictor of success in varying
contexts. By analyzing Duckworth’s findings, this researcher hoped to take the study of
grit from predicting success, to building grit in order to make success a reality for more
students. This researcher wants to stop building the argument that grit is a highly
desirable trait – as it is largely agreed upon by academics and lay-people alike. The goal
of this study is to ultimately discover the next step. How do we build grit in children?

Conclusion

“To many people, including teachers, a student is motivated when they express
interest in a school task, feel excited about it, or think that it is important and
worthwhile… At the same time, almost all motivation research includes constructs
related to students’ own beliefs about their capabilities to do a school task” (Linnenbrink
& Pintrich, 2010, p. 120). Grit research is the link between success and the reasons some
experience it while others do not. The literature on this topic is expanding at an exponential pace. While this is happening, some themes seem to be forming around grit; growth-mindset, independence and self-efficacy, and belonging. The interconnectedness of these themes makes them difficult to separate for the purposes of discovering which constructs are more closely linked to grit development. However, it is safe to say that they are all related to grit – perseverance and passion to achieve very long term goals.
Chapter 3: Procedures and Methods

Research Design

The purpose of this study was to discover what experiences and qualities lead to grittier students. Since different people are grittier than others, this researcher wondered what made some of her students better at maintaining a strong work ethic over long periods of time and what caused others to falter in the same task? To answer this question a three-part survey was used and directed at adults who had experienced education systems in one form or another. It asked them to reflect and report on past experiences in order to give the researcher insight to answer her research question. The first part consisted of eight Likert scale questions designed by Angela Duckworth (Duckworth et al., 2007). This section established how gritty the participant was. The second portion of the survey was developed to pinpoint what –beyond mere genetic traits- made that person as gritty as they were. The second portion of the survey consisted of ten polar (yes or no) and one open ended question. The second portion of the survey was informed by research in Growth Mindset (Dweck, 2007), the Circle of Courage, (Brokenleg, 2012), Sagor’s (1996) five themes (belonging, competence, helpfulness, potency and optimism) and Von Culin et al.’s (2014) theory of happiness through engagement, meaning and pleasure. The open-ended question was provided to give participants the opportunity to divulge any additional information they felt they could provide that made them gritty. Finally, the third part of the survey asked four questions designed to provide the researcher with some background information about the participants.
Sample

The convenience sample consisted of 241 adults from communities around the world. They were recruited via the researcher’s Facebook page. Friends of the researcher were encouraged to share the researcher’s post in order to spread the survey to a more dynamic group of individuals. It is likely, most participants were from the Vancouver Island region as many of the researcher’s contacts are from that area. However, the researcher does have friends, and friends of friends who are members of the global population. Not all participants answered all of the background questions. However, of those that answered the level of education question; no one stated that their highest level of education was elementary school, 9% said they had completed up to high school, 17% of participants had some college/university, 21% had received a diploma or certificate of some kind, 35% of participants had a bachelor’s degree and 18% had received at least a master’s degree. Refer to Figure 1 for a graphic summary of participant’s level of education.

![Graph showing level of education](image)

*Figure 1.* Participants’ level of education (n= 165).
Participants’ level of income (see Figure 2) had a wide range. 5% of participants stated they made more than $100 000/year, 10% made $80 000 to $100 000/year, 20% made $60 000 to $80 000/year, 25% of participants made $40 000 to $60 000/year, 26% made $20 000 to $40 000/year and 14% made less than $20 000/year.

Participants reported a wide array of professions (see Figure 3). 20% identified as ‘Teacher’, 10% said they were retired, 10% said they were Educational Assistants, 10% were in Health Care, 9% were in Trades, 7% identified as Administrators/Managers, 7% were in fields surrounding Finance, 4% were Public Servants, 3% said they were Self-Employed, 2% were Lawyers, 2% were in Sales, 2% were Engineers, 6% identified as ‘Unemployed’ and there were 7% of participants who didn’t fit into any of the above categories.

Figure 2. Participants’ income range (n=164).
In Instruments Used and Scoring Procedures, the survey used consisted of 23 questions. The first eight questions were developed by Duckworth. They consisted of questions centered around determining both effort and interest in very long term goals (Duckworth & Quinn, 2009). They questions included a 5-point Likert scale that asked participants to rate themselves based on scenarios presented as “Very much like me” to “Not like me at all”. Questions 1, 3, 5, and 6 were reverse scored to prevent social desirability bias. These eight questions provided each respondent with a score out of five (5 being very gritty and 1 being not gritty at all) against which their responses to questions 9-18 were internally compared.

Questions 9 through 18 were polar questions developed by the researcher based on literature. Within the literature, several themes arose. Sagor (1996) had five banners or

Figure 3. Employment categories of participants (n= 162).
schema; He said that gritty children feel like part of a community - belonging, they have experienced success - competence, they feel like they make a difference - usefulness, they feel empowered – potency, and they are positive thinkers – optimism. The Circle of Courage explains that children need to feel significant in their importance to others – Belonging. They need to feel capable and talented – Mastery. They want power and control over their lives – Independence. And finally children need to feel valued by being valuable to others – Generosity (Brokenleg, 2012). Von Culin et al. (2014) had three aspects that contribute to grittiness. They said that in order to be gritty we must be happy and to be happy we must experience “pleasure, engagement and meaning” (Von Culin et al., 2014, p. 307).

This researcher used the themes that emerged from the research and redefined them into a blended model that included the constructs or qualities of belonging, ability, personal value, and influence. Each question was crafted to provide the participant with one positively associated relationship to one of these constructs and one question that was negatively associated with the same construct - in relationship to grittiness. Questions 9 and 10 were concerned with belonging. Participants were asked, “Do you feel you do not belong to your community?” and “Did you regularly go to school when you were a student?” Questions 11 and 12 addressed perceived ability. The participants answered, “Did you participate in activities outside of school because it is fun?” and “Do you believe you received bad marks at school?” Questions 13 and 14 of the survey were concerned with whether the participant felt personal value. Participants were asked, “Do you feel there are not people in your life who need you?” and “Do you volunteer to help others?” Questions 15 and 16 asked the participant to address their perceived influence on
the world around them. These questions asked, “Do you feel you have control over your life?” and “Do you think you are independent?” The last two questions dealt with Dweck’s theory of Growth Mindset (Dweck, 2006). In an attempt to judge whether they felt they could improve their ability to learn new material with effort, the participants were asked, “Do you think it is possible to get smarter?” and “Do you believe you are good at something because you are naturally talented?” The final open-ended question, “Grit is a person’s willingness to do hard work for a long time, through tough situations in order to achieve their goals. What experiences have you had which made you a grittier person?” was intended to give the participants an opportunity to attribute their perceived level of grittiness to experiences, beliefs or training.

Validity of the tool was ensured as the first eight questions were adopted from Duckworth’s widely cited Short Grit Scale (Grit-S) (Duckworth & Quinn, 2009). The following eleven questions were reviewed by teaching professionals and volunteer adults (acquaintances of the researcher) for clarity. Revisions were taken into account, and the final copy submitted to the participants was widely understandable and met the goal of answering the research question.

**Procedures**

Once ethics approval was granted from the Vancouver Island University Research Ethics Board, the survey was posted to Hosted in Canada Surveys website and opened up to the general public. The researcher then posted to her Facebook account a link to the survey and explained the purpose and anonymous nature of the survey on the Facebook post (Appendix B). Potential participants could click the Facebook link and be directed to more detailed instructions and justifications of research from the survey’s opening page
They were again made aware of the anonymous nature of the survey, asked to answer honestly without identifying themselves in the open answer question and were reminded that once submitted, their data could not be retrieved or returned. The incentive was also explained on the opening page of the survey in order to further entice potential participants to complete the survey. The incentive was an entry into a draw for a $75 Boston Pizza gift certificate. Instructions for entering the draw were provided on the opening and closing pages of the survey. Those who provided contact information were entered into a draw. The draw was held once all the data was collected.

Because of the anonymous nature of the survey, respondents were not debriefed with their grit score. However, the results of the study were published on a VIU (Vancouver Island University) website.

Justification of the use of an incentive was relatively simple. In order to attempt to reach somewhat generalizable conclusions, as much data as possible was needed. The small $75 Boston Pizza incentive encouraged more people to complete the survey and ultimately led to additional ‘sharing’ of the link to other Facebook users. This meant the survey reached a much wider audience than the researcher’s friends alone.

Validity

Validity of this tool (Appendix A) varies. The first eight questions which consist of Duckworth’s Short Grit Scale (Grit-S) has been widely tested and evaluated in many settings (Duckworth & Quinn, 2009). Thus, it has very strong internal and external validity. It is credible, as it has been cited by many researchers as the tool to assess grit. It is generalizable and dependable, as versions of the scale have been used on thousands of people with predictable results.
The second section of the survey, although theoretically valid as it was designed by drawing on the literature, is less credible. To improve credibility, the researcher presented the survey to several teaching professionals (teachers certified in British Columbia) and to other volunteer adults and acquaintances. They were asked for feedback regarding the language used, predicted emotions the questions may evoke, and clarity of the purpose of each question. After revisions, the survey was presented to the Research Ethics Board and ultimately the sample group.

To further bolster internal validity, each theme discovered in the literature had two questions associated with it. There was a positive and negatively associated question with the construct of grit for each theme. The purpose of this was to provide clarity regarding the issues of belonging, ability, personal value, influence and growth mindset for both the participant and the researcher tallying the results. By approaching each issue from two perspectives, the researcher could be more sure of the measures of each construct.

A major limitation of this tool lies in the social desirability of being a gritty person. Grittiness is widely acknowledged as a positive trait. Many people may feel the need to answer the Likert-scale section of the survey with a positive lean. In addition, some of the questions phrased in the polar section have some undesirable connotations. Questions such as, “Do you feel you don’t belong to your community?” and “Do you think you received bad marks at school?” could have been difficult to answer “Yes” to. The anonymous nature of the survey and the researcher’s encouragement to answer the questions as honestly as possible were both purposefully designed to minimize the limitations of the research tool.
Additionally, negatively phrased questions -purposely designed to be negatively or positively associated with grit- were sometimes confusing. For example, question #13 “Do you feel there are not people in your life who need you?” and #9 “Do you feel you do not belong to your community?” had to be read very carefully. The negative response meant that you do have people who need you and that you do feel you belong, but this was confusing to some participants.

Another limitation of this tool is the central tendency of the grit scale itself. Grit scores ranged from 2 (the lowest recorded) to 5 (the highest recorded). However, 85.9% of the respondents had a grit score that fell between the 3 to 4.5. This central tendency forced the researcher to attach a heavy meaning and draw major conclusions from very small data fluctuations.

**Analysis Techniques**

Once each survey (Appendix A) had been given a grit score (questions 1, 3, 5 and 6 were scored 1-5 and 2, 4, 6, 7 and 8 were scored 5-1. The score was then added and divided by 8 to get a grit score out of 5). That score was recorded and associated with each participant. Participants’ answers to the polar questions were tracked and associated with their grit score. Questions 10, 11, 14, 16 and 17 were positively associated with grit. Questions 9, 12, 13, 15 and 18 were negatively associated with grit. Box and whisker graphs which listed the grit score on the y-axis and had the polar responses on the x-axis were created. The average grit score and the range of scores for the respondents could be observed for each group that responded ‘Yes’ or ‘No’ to each question. Each question had its own box and whisker plot graph. For an example of the format of these graphs refer to Figure 4. The responses to the open-ended question, “What experiences have you
had which made you a grittier person?” were put into a Wordle program to see frequency and trends of common language used. A small version of this Wordle can be viewed in Figure 5 and a larger version is provided in Chapter 4.

*Figure 4. Example of box and whisker graph created for each polar question.*
Figure 5. Small version of Wordle to visualize themes from responses to the survey open-ended question.
Chapter 4 – Results

Grit Score

Each participant’s grit score was determined by the use of Duckworth’s Short Grit Scale (Grit-S) (Duckworth & Quinn, 2009). It had eight Likert-scale questions, which gave each participant a score out of five for grittiness. This score was attached to each participant and tracked as they answered the remaining portions of the survey. Of the 241 participants who completed portions of the survey 184 answered all of the Grit-S questions and could have their grit score measured. The grit scores ranged from 2 (the lowest recorded) to 5 (the highest recorded). However, 85.9% of the respondents had a grit score that fell between 3 to 4.5. Figure 6 shows that there is a very strong central tendency with this tool. The researcher must therefore notice small differences in grit scores when examining the results of the survey, and draw conclusions from changes as little as a tenth of a point.
Participants’ grit scores were also analyzed and compared to their level of education and their income level. See Figure 7 for a graph comparing grit score and education level and Figure 8 for a graph comparing grit scores against income. As you can observe in Figure 7, the grittiest participants with an average grit score of 3.85 were those who had obtained a master’s degree. This seemed reasonable to the researcher as obtaining a master’s degree is a very long-term project, which requires persistence of effort and passion – grit. However, there was little observable difference between participants’ grit scores who had finished high school (average grit score of 3.59), some college/university (average score of 3.59), diploma/certificate (average grit score of 3.60) and a bachelor’s degree (average grit score of 3.61). The trend –however small– does lend to the concept that the longer you are in education the grittier you become. It has also been proven through grit research that people get grittier with age (Duckworth & Seligman, 2005) so this upward trend may have been associated with the fact that it

*Figure 6. Participants’ (n=184) grit scores arranged from lowest to highest.*
simply takes more time to obtain higher levels of education. Therefore, it can be assumed that those with a master’s degree are quite possibly older than people with a bachelor’s degree, those with a bachelor’s degree are older than those with a diploma and so on until the youngest group (high school graduates) are the lowest on the grit scale due simply to their young age. Unfortunately, age data was not collected. So this hypothesis cannot be confirmed in this study.

![Figure 7. Grit scores compared to highest level of education obtained (n = 165).](image)

When examining grit scores and comparing them against participants’ annual personal income (Figure 8) there is not a discernable trend linking the two factors. People who identified as making less than $20 000 per annum had an average grit score of 3.80. Those who made from $20 000 to $40 000 had an average grit score of 3.55. Participants
who reported making $40,000 to $60,000 scored an average of 3.69 on the grit scale. People with an annual income of $60,000 to $80,000 scored 3.60. The $80,000 to $100,000 annual income participants had an average score of 3.75. Finally, those who made more than $100,000 per year scored 3.68 on the grit scale. Considering the highest and lowest grit scores are in the first two lowest income brackets it is difficult to associate income with grittiness. However, it could be concluded that living on less than $20,000 per year may be a very difficult task - which would require a lot of grit. While hovering at the poverty line ($20,000 to $40,000) may include individuals who rely on social welfare who are less motivated to stand in society on their own. Again, these theories cannot be confirmed from the data collected within the scope of this study.

Figure 8. Mean grit score compared to annual personal income (n= 129).
The study asked ten polar questions and compared the results against participants’ mean grit scores. There were five themes developed by the researcher from literature. The five themes are: belonging, ability, personal value, influence and growth-mindset.

**Belonging**

Addressing the two survey questions concerning participants’ need to belong, are Figures 9 and 10. The negatively phrased question, “Do you feel you do not belong to your community?” had average grit scores that do not agree with the research behind belonging and grit theory. Those who answered ‘No’ to this question had a slightly lower grit score than those who answered ‘Yes’ (Figure 9). It was expected that those who said ‘No, I feel I belong’, would have had a higher grit score than those who agreed to the detached feeling. 26.78% of respondents (n=184) answered ‘Yes’ to this question, while 73.22% answered no. As mentioned in the limitations of this study, this data may have been drawn from a difficult to read survey question – which would explain the anomaly.
Figure 9. Grit scores compared to negatively associated construct of belonging survey question (n = 184).
Figure 10 shows the data collected for the positively associated belonging survey question to grittiness. The query, “Did you regularly go to school when you were a student?” had the expected results. The grit scores of individuals who answered ‘Yes’ to this question were noticeably higher than those who had answered ‘No’. 15.30% of participants (n=184) answered this question negatively, while 84.70% answered positively. The average grit score of those who said ‘Yes, I regularly went to school’ was 3.80. Those who didn’t feel they had attended school on a regular basis had a lower score of 3.40. It can be assumed that those who didn’t attend school very regularly didn’t feel a strong connection to that community. If they had, they most likely would have been
regular attenders. This data supports the claim the literature makes that those who feel they belong are grittier people.

**Ability**

The next two survey questions had to do with a person’s perceived ability. The research states that those who feel able to master a skill or succeed in some way, will demonstrate more grittiness (Brokenleg et al., 2002; Duckworth, 2013; Sagor, 1996; Von Culin et al., 2014). The positively associated question about ability asked, “Did you participate in activities outside school because it was fun?” (see Figure 11). The question followed the logic that most people will experience fun when they are successful. Essentially, the question is asking participants to remember extra-curricular activities and recall if they participated and had fun because they were successful. 21.31% of respondents (n= 184) answered ‘No’ to this question, while 78.69% answered ‘Yes’. Participants who answered ‘Yes’ to this question had an average grit score of 3.80, while those that said ‘No, I didn’t participate because it was fun.’ had a lower score of 3.60. This confirms the hypothesis that those who feel able are grittier.
The negatively associated question, “Did you receive bad marks in school?” asked participants to reflect on their opinion of whether they felt successful during their school years (see Figure 12). It is directly linked with the idea that grittier people feel more able than non-gritty individuals. (Brokenleg et al., 2002; Duckworth, 2013; Sagor, 1996; Von Culin et al., 2014) 71.58% of respondents (n=184) answered ‘No’, while 28.42% answered ‘Yes’. Those who answered ‘No, I don’t think I got very poor marks I did well in school.’ had an average grit score of 3.75. Those individuals who believed, ‘Yes, I received bad marks.’ scored an average of 3.62 on the Grit-S. This numeric trend – although not as strong a result as the data shown in Figure 11 – does lend support to the theory that people who are gritty believe they are successful. It is important to note that

![Figure 11. Mean grit score compared to positively associated construct of ability question (n = 184).](image)
this question deals with one’s own perception of oneself and has nothing to do with whether or not the participant actually did receive good marks during school. It simply deals with the notion that those who feel successful are grittier individuals.

![Box plot showing mean grit score compared to negatively associated construct of ability question (n = 184).](image)

**Figure 12.** Mean grit score compared to negatively associated construct of ability question (n = 184).

**Personal Value**

Multiple studies have found that those who feel valued within their community, have their opinions considered, and are appreciated for their gifts - are grittier people
(Brokenleg et al., 2002; Masika & Jones, 2015; Von Culin et al., 2014). The next two survey questions, “Do you feel there are not people in your life who need you?” and “Do you volunteer to help others?” deal with this concept of personal value and link it to grit. 20.22% of respondents (n=184) answered ‘Yes’ to this question, while 79.78% responded ‘No’. Figure 13 shows that people who answered ‘No, I have people who need me.’ had a grit score of 3.75 on average. Those who said ‘Yes, no one needs me.’ had an average grit score of 3.50. Even though this was one of the questions identified as slightly confusing, participants confirmed that grittier people feel more valued.

Figure 13. Mean grit score compared to negatively associated construct of personal value question (n = 184).
A large difference in mean grit scores stemmed from the question asking about volunteering. Von Culin et al. (2014) discovered that happiness comes from a feeling of meaning. Brokenleg et al. (2002) acknowledged that prestige is afforded to those that give altruistically. This leads to a feeling of accomplishment and ultimately grit. 85.79% of respondents (n=184) said they volunteered, while 14.21% admitted they did not. It makes sense that there was a strong difference in grit scores between those who said they volunteered (mean grit score of 3.80) and those who admitted they did not (mean grit score of 3.30). Figure 14 shows a very noteworthy quantitative finding that those who feel valued are grittier individuals.

Figure 14. Mean grit score compared to positively associated construct of personal value question (n=184).
Influence

Research considering one’s perceived ability to control or affect what is going on around them has a direct relationship to how gritty one is (Bartone, Roland, Picano, & Williams, 2008; Brokenleg et al., 2002; Reis, Colbert, & Hebert, 2004). The question, “Do you feel you have control over your life?” showed the second largest difference in mean grit scores in the study (see Figure 15). Those who answered ‘No, I don’t feel in control.’ had an average grit score of 3.19. Those who said, ‘Yes, I’m in control of my life.’ scored an average of 3.75 on the Grit-S. 13.11% of respondents (n=184) said they did not feel they had control over their life, while 86.89% said they did feel they had control. This evidence strongly backs up the theory that in order for one to be gritty, they must also feel in control.
The second question related to influence asked the participants, “Do you think you are independent?” This largely stems from the idea that people who depend on others wholly, cannot feel control – instead they feel like someone else has greater influence over their lives. The data collected from this question showed the strongest result in favour that personal influence is directly tied to grittiness. Those who said, ‘No, I’m not independent.’ had an average grit score of 3.10. Those who said they were independent had a grit score of 3.80 (see Figure 16). That difference of 0.7 on the grit scale was the largest difference in grit this study observed. However, this question had very few who responded negatively. Only 8.2% of respondents (n=184) said they did not feel independent, while 91.8% of respondents said they did feel independent. This means that
it would only take one or two negative responses to strongly influence the mean in a downward direction. However, the strong grit scores and the high number of positive respondents indicated that feeling independent leads to higher levels of grit or vice versa.

![Figure 16. Mean grit score compared to the construct of independence question (n = 184).](image)

To further analyze the question of independence, the researcher wanted to take all those who answered ‘No, I don’t think I’m independent.’ and investigate to see if perceived independence had anything to do with personal annual income. To do this, she looked at individuals who answered ‘No’ and recorded their reported income bracket. Not all respondents to the Grit-S also chose to answer the income bracket question, so those who didn’t answer both parts of the survey were overlooked for this portion of the investigation. The researcher discovered that 72% of the ‘No’ respondents made less than
$40,000. Granted, the sample size was relatively small (n=18). However, it did point to a further direction of study linking income to independence to grittiness (see Figure 17).

**Figure 17.** Number of people who do not feel independent compared to their annual personal income (n = 18).

**Growth Mindset**

Growth mindset – the concept that one can grow one’s own intelligence through hard work – was identified by Duckworth herself in her Ted Talk as the most promising research behind increasing grit in students (Duckworth, 2013). This researcher created two questions that would identify if the participant leaned toward a growth mindset or not. The first question, “Do you think it is possible to get smarter?” Strongly supported the position that growth-mindsetted people are grittier. Figure 18 shows that of those who answered negatively to this question, the average grit score was 3.10. Of those who
answered ‘Yes, it’s possible to get smarter.’ The average grit score was 3.80.

![Figure 18](image)

**Figure 18.** Mean grit score compared to positively associated construct of growth mindset question (n = 184).

As in the independence question, very few answered negatively to this question – forcing the researcher to examine this data cautiously. Only 2.19% of respondents (n=184) indicated they did not think it was possible to get smarter, while 97.81% said they thought it was.
The second question sought to obtain the participants' true feelings about growth mindset by asking a negatively associated question pertaining to growth mindset. “Do you believe you are good at something because you are naturally talented?” was designed to make the participant carefully think about why she or he achieves success. An answer of ‘No’ insinuates that there must be something else other than talent – possibly hard work or even luck – that drives their success. An answer of ‘Yes’ would indicate the respondent believes genetics or in-born traits have contributed to their success. 28.42% of respondents (n=184) indicated they did not think they were good at something due to
talent, while 71.58% said they attributed skill to talent. Interestingly, the mean scores were exactly the same (3.80 on the Grit-S) for both the positive and negative respondents (see Figure 19).

**Open Ended Question**

The final survey question asking, “Grit is a person’s willingness to do hard work for a long time, through tough situations in order to achieve their goals. What do you think made you a grittier person?” provoked a litany of responses from participants (n=152). These responses were collected and placed into a word frequency tool, which adjusted the size of words appearing on a poster based on their frequency in the text document (see Figure 20). While this may not have been a wholly quantitative analysis, it did give the researcher clear insight as to the themes that were popular among respondents.

Several times, in prominent font, ‘work’ shows up. This shows that respondents believe grit is related to hard work. Also prominently displayed are the following words: years, hard, time, long, months, and experience. This indicates that grit must be related to the construct of time – more specifically a long time. Also in larger print are the refrains: school, degree, college teaching, education, university and job. This leads the researcher to believe the respondents connected the schema of grit to education and the work environment. Bolstering the idea that people need to feel supported and part of a community are words like: family, parents, children, helped and support. A final theme the researcher observed in some of the medium-sized to smaller type were the words that surrounded the idea of needing to set goals. Words like: achieve, goal, persevere, career, and wanted showed that participants felt that if you set goals, you would show and use
more grit to attain them. Granted these phrases were taken out of context, but they do
paint a clear picture when put together in this format. Figure 20 further supports the idea
that in order for one to be gritty, they need to feel they belong, are able, feel valued, have
influence and possess a growth mindset.

Figure 20. Wordle displaying the size of text in relation to the frequency of appearance
of the words participants (n=152) chose to describe what they think made them grittier
people.
Chapter 5 – Conclusions and Implications for Education

Summary

Duckworth once stated, “We have to be gritty about making our kids grittier” (Duckworth, 2013). The reason we need to help students build this character trait is obvious – success. Students and adults alike are more successful if they are grittier (Duckworth, 2013). We have understood this basic idea for a long time. About 1¼ centuries ago, Galton found that successful people need to have not only ability, but zeal and a capacity for hard labour (1892). Teachers know that individual student success cannot be attained through cookie-cutter, one-size-fits-all systems of education. Every student is different: they have different needs (Halbert & Kaser, 2013). If teachers want to make them all grittier, they will have to employ a variety of methods. This thesis sought to answer the question, ‘Do certain experiences help young people develop grit? If they do, can we use this knowledge to better develop this trait in our children?’

Through extensive literary research and quantitative and qualitative gathering of data, this researcher found that we need to make students believe they are able, have influence over their lives, that they belong, that they have personal value, and that their brains actually grow with effort (growth-mindset). Supporting these findings, this teacher/researcher will use personal experience and draw on literature to explain some ways we can build all five of these attributes of grittiness within the context of the school community.

Implications for Policy and Practice: Belonging

The findings of this study were mixed. The first question, “Do you feel you do not belong to your community showed a higher grit score for those who felt they didn’t belong as compared to those who said they did have a sense of belonging. However, the
second question, “Did you regularly go to school when you were a student?” had a much higher grit score for attenders than non-attenders. Ultimately, this study did provide evidence that belonging is somehow related to grit: As students who do not attend school grow up to be less gritty adults. How can we help a student who is feeling alienated from school feel as though they belong? Many teachers have seen the devastating effects on the psyche of a child who feels friendless and disconnected. One of the main ways we can build connection is through team building (Masika & Jones, 2015). Whether it is extra-curricular (teams and groups like; sports teams, dance groups, debate teams, leadership clubs, chess/board game teams, intermural sports or check-in’s) or intra-curricular (group projects, jigsawing, gamification of the classroom, small group learning and games) it will always involve an extra effort and thoughtfulness by school staff (Halbert & Kaser, 2013). See Table 1 for a detailed description of the extra-curricular and intra-curricular activities and teaching techniques presented to increase a student’s feeling of belonging.

Table 1

*Detailed Descriptions of Extra-Curricular and Intra-Curricular Activities and Teaching Techniques Promoting Belonging*

<table>
<thead>
<tr>
<th>Activity/Technique</th>
<th>Detailed description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports Teams</td>
<td>Sports that are taught and promoted outside the regular school day. This usually involves inter-school competition within the school district, or between other regional school districts.</td>
</tr>
<tr>
<td>Dance Groups</td>
<td>This could include competitive or non-competitive dancing and/or cheerleading.</td>
</tr>
<tr>
<td>Activity Type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Debate Teams</td>
<td>This extra-curricular activity could involve competitive debating in a more formal context between schools and districts, or a club style where debates occur between teams at the same school.</td>
</tr>
<tr>
<td>Leadership Clubs</td>
<td>Usually are facilitated by a teacher, but are very student driven. Students seek out and implement leadership initiatives within their own schools, local communities or even the global community. These could range from organizing a school dance to raising money for developing countries and education systems.</td>
</tr>
<tr>
<td>Chess/Board Game Team</td>
<td>Frequently competitive, those who enjoy playing chess discuss strategies and techniques within their team in order to better perform at inter-school competitions.</td>
</tr>
<tr>
<td>Intermural Sports</td>
<td>Semi-competitive student created teams or classroom teacher created teams, that compete against each other during the school day – typically during lunch hour.</td>
</tr>
<tr>
<td>Check-In’s</td>
<td>Letting students regularly communicate what is going on in their lives to their classmates and their teachers. Depending on the format of the class, this could be daily, weekly or even monthly. Often these check-in’s are lead by a focus question such as; “How are you feeling today and why?” or “If you could be any superhero, which would you be and why?”</td>
</tr>
<tr>
<td>Group Projects</td>
<td>These are academically driven projects connected to the</td>
</tr>
</tbody>
</table>
curriculum. Typically these consist of research topics including a presentation of learning. Students work together to research a question, help all members of the group understand the answer, and then support each other as they present their learning to the class.

<table>
<thead>
<tr>
<th>Jigsawing</th>
<th>Students are given a large body of text. The text is divided among the members of the group. Individual members read and take notes or answer questions on their section of the text (this can happen individually or with other classmates who are reading the same portion of text). Group members then share their learning with their group mates so that the whole group understands the entire body of the large document.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamification of the Classroom</td>
<td>Generally used as a behaviour management tool, gamified classrooms use a points system for promoting positive behaviour. Teams within the class are created at the beginning of the school-year. These teams compete and support each other. For example – if one member of a team runs out of points for behaving poorly other members can ‘save’ them from their penalty by sacrificing their own points. Small teams within the classroom further promote a sense of camaraderie.</td>
</tr>
<tr>
<td>Small Group Learning and Games</td>
<td>The teacher carefully creates groups of three students per group. Each group has a strong, medium and weaker student within...</td>
</tr>
</tbody>
</table>
The teacher presents the whole class with a question or problem. It is the responsibility of the entire group to ensure each member understands the answer. The teacher then randomly selects one of the three group members to demonstrate their learning. This can be turned into a competitive format where groups of three compete against each other for a prize.

**Implications for Policy and Practice: Ability**

Both of the survey questions associated with ability showed that students who perceive themselves to be able are grittier. Students need to feel like they will eventually experience success (Dweck, 2010). They need to be confident in their own ability to problem solve and learn. If students do not believe they are able, they will ultimately lack grit. Teachers can do many things to make students feel able. They know students are all very different and require different supports (Halbert & Kaser, 2013). Advocating for, and being up to date on available learning supports is the first step in making students feel like they can be successful (Halbert & Kaser, 2013). The old adage, “What is fair isn’t always equal.” comes into play here. Some students will need more varying supports than others. Just because one student gets the use of an iPad for a certain task, it does not mean that all the other students need it as well. For example, if a student has difficulty with fine motor skills like printing and typing, they should be given alternate means to communicate their learning (such as making videos, podcasts, verbal presentations or a scribe or oral language-to-text program). If alternate means of demonstrations of learning
are not made available, an otherwise intelligent individual could be lead to believe they are not smart, thus losing confidence in his or her abilities.

Another way teachers can influence a student’s perception of their ability is to make goal setting a regular systemic practice in their classrooms (Reis, Colbert, & Hebert, 2004). Setting individualized achievable goals and helping students to meet those goals will lead to students having a positive self-image of their ability. Examples of this in the classroom may be to have students create their own spelling lists from the books they are reading (Boushey & Moser, 2016). The list could be as long as the student believes they can get 90% correct. In this scenario, students are expanding their vocabulary, challenging themselves, and experiencing success when they get 11/12 or 19/20 on the quiz. Another method for allowing students to set their own goals and have tangible evidence of success can be through graphing correct responses on timed mathematics drills. Students not only get to see their progress throughout the year in a very real format, but know what would be a realistic goal for next time. In writing, teachers can show students how to critically analyze their own work, set a goal to make a singular improvement and then bring that goal to the forefront before beginning the next writing activity (Atwell, 2002). The researcher has also found that letting students create their own portfolios of evidence of goals set and achieved gives the student an opportunity to reflect and see real progress. These are but a few ideas around what teachers can do with goal setting to help build and maintain a student’s self-perception of his or her ability.

Teachers have been using a method called ‘scaffolding’ for many years. Much the same way scaffolding is used on a construction site to get further and further up the
building: teachers can use scaffolding in project and assignment design to help students feel success (OECD, 2015). Often, if an assignment seems to be too big, too challenging or insurmountable, they will have difficulty even getting started. By giving a project or assignment in pieces with each subsequent portion building onto the previous learning, students can achieve results that they didn’t believe they had the ability for before. This greatly and positively influences a student’s schema of what they can actually accomplish. When they reflect on their final body of work they are surprised at their own ability, and will feel more able when the next task is presented.

Similar to personalized goal setting is the use of personalized criteria. Students need to feel challenged, they need to understand what is expected of them, and they need to feel they can achieve success (Sagor, 1996). Building criteria with individual students satisfies all these needs. The assignment or project can have the same description for all students. It could be an inquiry project, an essay or even a skill test in Physical Education. For one student they may create criteria with much more demanding rigor, while another student creates criteria which is less demanding. For example, in Physical Education, during a culminating skills test for a basketball unit, one student may decide they think they should be able to shoot a foul shot with correct form 70% of the time and at least touch the rim with 50% of their shots. Another student who has more basketball experience may have a different set of criteria entirely. They know they have good form and simply want to shoot 80% in the basket to achieve success. The idea with personalized criteria building, is that every student feels challenged, but not overwhelmed (OECD, 2015). Frequently, this process needs a lot of assistance and guidance from the teacher to ensure the criteria lines up with the curriculum, challenges the individual to
push themselves and isn’t beyond what the student can realistically achieve. This process avoids boredom for the top students and burn-out/helplessness from the lower ones (The Hawn Foundation, 2011). Frequently teachers feel they need to teach to the middle of the group to allow the most students the experience of success. However, this process of creating individualized criteria makes all students feel success is within their grasp. This has a positive influence on their perception of their abilities.

**Implications for Policy and Practice: Personal Value**

The results of this study also connected one’s perception of their value within a community or group to grit. It proved that volunteering and feeling needed contribute to a person’s perceived value. Both grit scores associated with personal value had a strong indication that personal value is linked to grit. The more participants thought others within the community needed them, the grittier they were. This idea is also strongly linked to belonging. If the team is counting on you, you will dig a little deeper for everyone’s benefit. Many of the ideas listed in Table 1 can also raise one’s sense of their personal value. However, activities where students can give to others and show generosity of spirit seem to be particularly effective in building personal value (Brokenleg et al., 2002; The Hawn Foundation, 2011). For older students, in addition to formal leadership clubs, leadership between classes can have a positive effect on personal value. This teacher/researcher has seen the massive effect having ‘little buddies’ has on the older students. If it is partner reading, a craft or art project or even an outdoor hiking experience, the big buddy feels a responsibility to their junior. They will be very unlikely to leave their little buddy at the bottom of a steep hill while on a hike, or let their little buddy flounder on a word they haven’t learned to sight read yet. The big buddy’s
behaviour changes immediately when they are paired up with their little buddies because they know they have value in the eyes of their little buddy (OECD, 2015).

Another way this teacher/researcher has found to increase a student’s own perception of personal value is to create projects where the culmination is to affect positive change within their local or global community (Halbert & Kaser, 2013). For example, aligning with the curriculum surrounding children’s rights and child labour, students could do a research project on carpet makers in Pakistan. They could do their own research and instead of simply presenting what they have learned, they could write to the CEO of a carpet company, encouraging them to make sure they know the source of their carpets and that they are not made using child labour. This is one of many ways a creative teacher can make their students feel truly valued.

Personal value doesn’t have to be developed through grand complex system designs, projects, and assignments. It can be built using simple ideas such as class chores. With the understanding that the classroom space is not the sole responsibility of one person - but the entire class, students can gain the same feeling of interdependence, thus promoting personal value (Brokenleg et al., 2002). All of the jobs on the jobs list need to be done before home time and it is up to the whole class to get them done before the busses arrive. The class is counting on little Johnny to put all the headphones away while the rest of the class is doing their own jobs. Johnny will feel valued, included, and counted-upon to complete his task. This will ultimately increase his sense of personal value.

Volunteering also has a huge impact on how a person feels they are valued within the community (Brokenleg, 2012). This can be promoted through service learning and
field trips to the local shelter where students can not only get the message to appreciate what they have, but that even they can help and have value within their community. In the same realm as classroom chores, some schools have a volunteer system where older students can ‘supervise’ younger ones during eating time, or hand out/collection playground equipment during recess and lunch playtime. This creation of service learning opportunities within the whole school context can be very precious when trying to promote personal value. Some teachers have even taken classes to clean up salmon bearing streams or to cut down broom. Creatively connecting curriculum to community projects can be another way to promote volunteering and increase personal value (Tubin, N.D.).

**Implications for Policy and Practice: Influence**

The results of this study found that if a person feels they have little control over what happens to them they will lack grit. Adults who felt they had control over their lives had a grit score 0.6 points higher than those who didn’t. Those who indicated they felt independent had a 0.7 grit score increase. This leads directly to thinking about children’s thoughts on influence. They may likely ask, “If there is nothing I can do about the future, why should I work hard? Nothing will get better no matter how hard I try!” The idea of having their destiny laid out for them, gives students a feeling of helplessness. Children and youth must feel they have some control over their lives in order to be gritty (Horn, 2013). This need for influence will likely change with a child’s age. A young person of 15 years old will probably need to feel more in control than a seven year old. Teachers should take this varying level of need into account. However, everyone – no matter their age - needs to feel they have influence over their own life’s outcomes (Sagor, 1996).
One way students can feel influence within the classroom is by giving them choice: choice to complete tasks in a certain order, choice in how they will demonstrate their learning, choice in how they will learn and, even choice in what they will learn about (Boushey & Moser, 2016). A skilled teacher can provide choice for students within the daily classroom routines, academic assignments and even with rewards (Boushey & Moser, 2016).

Students love to pick the order they are accomplishing a set of tasks. Even if they understand they will be required to complete all the tasks laid out, students feel self-efficacy and influence if they can simply choose the order. Examples of how to do this in the classroom are to use stations for Language Arts and Mathematics. Students can choose a station in 15-20 minute rounds. A great structure for this is provided in the Daily 5 and the Math Daily 3 designed by two experienced Language Arts teachers (Boushey & Moser, 2016). Another way to incorporate choice while maintaining consistency of assignments completed by all students is through task cards. Task cards are a set of cards (much like playing cards) that can have whatever the teacher has asked the student to do. The tasks could range from scavenger hunts through a newspaper for Social Studies to word problems for Mathematics. The idea with both of these formats is that every student eventually completes the same set of work while incorporating choice, and thus increasing the student’s feeling of influence.

In situations where it is not as important for all students to cover exactly the same material (where process is as or more important than content) choice doesn’t have to be in task order alone. Another example of how this can be done is by having students complete inquiry projects (Patton & Robin, 2012). The class could all be doing an inquiry
for Science where their only instruction is to investigate properties of living things. With guidance from the teacher, students can create their question, research using multiple methods and present their learning in whatever format works for them. By providing not only choice in content, but in how to demonstrate learning, students have a real influence over what effect they have over their own education (Patton & Robin, 2012). Students realize the effect is authentic and significant. They feel real control - and therefore build their influence over their lives.

Many teachers use a reward system where students can choose their own reward for a job well done, good behaviour, or other accomplishment. This teacher/researcher has found that not all students respond as positively to the same reward as others. If the teacher’s reward for the class working well together all week is to go on a hike in the forest on Friday, and you are someone who is frightened of nature, then the reward doesn’t have much effect on your effort. However, if you know that you will have a choice of rewards, there is one there that is more likely to motivate you. This choice allows students to influence their own rewards. Examples of how this teacher/researcher has seen this used in a classroom has been with voting (on the class’s reward), auctions (students use points gained to ‘purchase’ rewards), coordinating with another teacher (one teacher will offer centers and the other teacher will take a group to play kickball- the students choose) or even a prize bin (which has a good mix of fun and interesting objects). If rewards help motivate – as many teachers believe is true – choice in rewards will motivate a student even more. This is because they feel they have influence over the outcome. This will therefore increase their grit.
Implications for Policy and Practice: Growth Mindset

The findings of this study also discovered that ideas surrounding Growth Mindset (Dweck, 2006) have an influence on grittiness. Those who expressed that it was possible to get smarter had a 0.7 higher mean grittiness score than those who said it was not possible to increase intelligence. Growth mindset is the belief that one can improve their intelligence through effort – versus a fixed mindset where one believes they have all the ability they will ever possess, no matter how hard they try to improve. To increase growth mindset in their students, there are several things that teachers can incorporate into their classrooms. Some of the most promising ideas are; to directly teach about the brain based research and what we know so far about how the brain develops (Reynolds & Birdwell, 2015), to be careful about how and why we give feedback to students (Dweck, 2007), to influence students’ views toward viewing a challenge as a learning opportunity (Dweck, 2006), and to change grading practices from academic achievement levels, to reports that also include effort as a measurable outcome (Reynolds & Birdwell, 2015).

Students are much more likely to develop a growth mindset if they understand how the brain physically changes and grows when it is challenged (Reynolds & Birdwell, 2015). Some people have the false belief that they are born with all the brain cells they have, and there is no way to improve their brain function. When they are informed that between the ages of 10-15 years old, children and youth experience neuronal growth similar to that of infancy; and that pathways formed and reinforced during the beginning of puberty stay for their entire lives, students are flabbergasted (The Hawn Foundation, 2011). By directly teaching what we have discovered so far about brain research and its plasticity, we prove to students that they can literally get smarter with
effort - much the same way we can get stronger by lifting weights (The Hawn Foundation, 2011; Tough, 2013). This will drastically increase a student’s drive to try their best and not be afraid of failure (Reynolds & Birdwell, 2015; Tough, 2013).

Connected to teaching brain research, is influencing how students view a challenge. Some students come into the classroom already seeing a challenge as a learning opportunity (Dweck, 2006). These are young people who are already leaning toward the growth mindset end of the spectrum. However, those who are afraid of challenges are teetering toward the fixed mindset end of the range. Students who are fixed in their mindset see a challenge as just that. Something that will measure them and likely – if they don’t rise to the challenge- find them wanting. These are the children who really benefit from the direct teaching about brain development and research (Tough, 2013). Teachers need to convince these students that failure is part of the process of learning, and that to fail does not mean that they are a failure. Teacher feedback can also have a strong influence this attitude.

Why teachers give feedback and how they give it can have a direct influence on the mindset of a student (Dweck, 2008). A student with a fixed mindset who just got 100% on their most recent Maths test may feel great when a teacher says, “Wow Johnny, you must be so smart!” However, he will be reluctant to take on a task in the future which challenges his ability since the last message the teacher sent was that ‘success equals smart, therefor failure equals dumb’ (Yeager & Dweck, 2012). Instead, teachers must be vigilant in only praising effort and process, not success (Dweck, 2007). If a student gets 100% on a math test, the teacher should say, “Wow Johnny, you must have created and stuck to a strict study schedule! I’m proud of how hard you worked!” This makes the
student feel praise, for their effort, not their mark. This also gives an avenue for teachers to authentically praise students who don’t always meet the success criteria (Halbert & Kaser, 2013). Phrases like, “Look how far you’ve grown!” and “You’re so close to getting this idea, just a little more practice and you will be there!” can be used to praise effort over outcome when students know they haven’t met the goal yet, but the teacher believes they deserve praise for their effort (Tough, 2013).

Finally, if we truly want students to believe effort is a valuable aspect of education, we need to show it. At the end of the year, when report cards go home, Johnny should be able to show off how hard he tried. This teacher/researcher believes that talented individuals are not necessarily successful. In order to achieve one’s full potential they must put in the time, work hard, and not give up (Ericsson, Krampe, & Tesch-Romer, 1993). They must have passion and perseverance over long periods of time (Duckworth, 2013). A talented individual who does not believe he or she needs to try hard to achieve success will not be as successful as a less talented person who is willing to work very hard (Duckworth & Seligman, 2005). It is for this reason that reports should always include a mark for effort (O'Connor, 2009). This teacher/researcher believes that this is more important than a grade and should be valued by students, parents and administration more than ‘A’s’.

Limitations of the Study

This study had several limitations. Most notably, the tool used had a very strong central tendency. This may have been due to the fact that it is very socially desirable to be gritty. It is very difficult to score a 1 or a 5 with this tool. Although, this makes the tool valuable for a variety of contexts (for example, it can be used with children in a
spelling bee up to West Point graduates) it forces the researcher to draw large conclusions from small differences in grit scores. This study also did not find out if the differences were statistically significant. Considering several of the questions relied heavily on a minority answering positively or negatively, there was a strong influence by a few respondents who did not answer with the majority. In some cases, data was drawn from less than 10% of the participant population. The researcher also encountered difficulties when participants did not answer all of the survey questions. If they missed even one question from the first part of the survey establishing their level of grit, their data could not be used for the polar questions. Although some of their information (such as answers to the open-ended grit question and demographics) could be used, this may have skewed the data gathered about the dynamic population who participated. It is difficult to say whether this study is very generalizable. Although 241 respondents completed portions of the survey, there were only 129 who completed it in its entirety. More participation would have made the study more generalizable.

Another limitation also lies within the fact that two questions designed by the researcher proved confusing for the participants. Questions like, “Do you feel like you do not belong to your community?” and “Do you feel like there are not people in your life who need you?” may have provided indeterminate data as answering ‘Yes’ to either question meant the opposite of what the question was asking. This may have been more a test of reading skill than grittiness.

The final and most important limitation of this study lies in its design. The researcher was required to take data derived from an adult population and to apply it to theories about youth and students in the classroom. Although the researcher does believe
her findings were accurate and could be used in classroom applications, it must be acknowledged that there is a leap in logic being made by studying adults who are fully developed in body and mind, and applying that knowledge to a population who is not.

Suggestions for Further Research

The most interesting prospect for future research would be to administer this study to a large group of students ranging in age from 12 to 16 years. Remaining within the scope of limited reading ability (the young end of the spectrum) and avoiding adults (the oldest end of the spectrum), would provide more directly related information for application within a classroom. It would be interesting to discover if the results were similar to this study or different, and why?

There was a large gap in grittiness between people who volunteered and those who did not. A study related to community service and grit would likely provide some valuable information, which may confirm Brokenleg’s theory (2012) that a child needs to feel valued - and may explain the importance of how First Nation’s cultures provide this through daily service within their immediate families and their communities.

Finally, it would prove interesting to this researcher to delve deeper into the issues of grit and poverty. With a very small sample size of 18 people, this study showed that those living on less than $20 000 a year were more gritty than those who managed with $20 000 to $40 000 annually. It would be interesting to test the hypothesis that those living on social welfare are less gritty than those who choose to go it alone. A larger sample size, and a specially designed research procedure may provide valuable information in this area.
Conclusion

In order to be gritty; students need to believe they belong, they need to deem they are able, they must feel valued by those around them, they must feel they have influence over their lives and they must possess a growth mindset. The research in this study found that all these facets contribute to one’s grittiness. Experiences of school aged children that make them feel they belong, are able, are valued, have influence and develop a growth mindset should be cultivated and implemented by teachers, school staff, and parents in order to create an adult who is incredibly gritty. Gritty children turn into gritty adults and gritty adults will in turn make for a more successful society. All those involved in childhood development should take this into consideration when interacting with the next generation.
References


Baltimore: Center for Research on Effective Schooling for Disadvantaged Students.


Ottawa: Minister of Industry.


intervention in seventh grade science:

http://www.niu.edu/imuscle/pdfs/ExploringTEffectsMindset_1.pdf


Appendices
Appendix A – Survey

Instructions: Please only complete this survey if you are 18 years of age or older. Do NOT write your name or any identifying information anywhere on this survey! If you would like to complete it later, please take it away to fill out and then place the completed survey in the drop box as soon as possible.

Please answer the following questions as honestly as possible. Some of the questions ask you to reflect on your time as a student. Place an ‘x’ in the box that most accurately describes you. There are no right or wrong answers!

1. New ideas and projects sometimes distract me from previous ones.
   - [ ] Very much like me
   - [ ] Mostly like me
   - [ ] Somewhat like me
   - [ ] Not much like me
   - [ ] Not like me at all

2. Setbacks (delays and obstacles) don’t discourage me. I bounce back from disappointments faster than most people.
   - [ ] Very much like me
   - [ ] Mostly like me
   - [ ] Somewhat like me
   - [ ] Not much like me
   - [ ] Not like me at all

3. I have been obsessed with a certain idea or project for a short time but later lost interest.
   - [ ] Very much like me
   - [ ] Mostly like me
   - [ ] Somewhat like me
   - [ ] Not much like me
   - [ ] Not like me at all

4. I am a hard worker.
   - [ ] Very much like me
   - [ ] Mostly like me
   - [ ] Somewhat like me
   - [ ] Not much like me
   - [ ] Not like me at all
5. I often set a goal but later choose to pursue (follow) a different one.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

6. I have difficulty maintaining (keeping) my focus on projects that take more than a few months to complete.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

7. I finish whatever I begin.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

8. I am diligent (hard working and careful).
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

9. Do you feel you do not belong to your community?
   - Yes
   - No

10. Did you regularly go to school when you were a student?
    - Yes
    - No

11. Did you participate in activities outside school because it was fun?
    - Yes
    - No

12. Do you believe you received bad marks at school?
    - Yes
    - No

13. Do you feel there are not people in your life who need you?
    - Yes
    - No
14. Do you volunteer to help others?
   □ Yes   □ No

15. Do you feel you have control over your life?
   □ Yes   □ No

16. Do you think you are independent?
   □ Yes   □ No

17. Do you think it is possible to get smarter?
   □ Yes   □ No

18. Do you believe you are good at something because you are naturally talented?
   □ Yes   □ No

19. Grit is a person’s willingness to do hard work for a long time, through tough situations in order to achieve their goals. What experiences have you had which made you a grittier person?

   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

20. What is your highest level of education? (circle one)

   Elementary School   High School   Some College/University
   Diploma/Certificate   Bachelor’s Degree   Master’s Degree
21. How much money do you make per year? (circle one)

<table>
<thead>
<tr>
<th>Less than $20 000</th>
<th>$20 000 - $40 000</th>
<th>$40 000 - $60 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>$60 000 - $80 000</td>
<td>$80 000 - $100 000</td>
<td>More than $100 000</td>
</tr>
</tbody>
</table>

22. What is your career/job? [Please answer without identifying yourself.]
________________________________________________________________________

23. Please include any information that you feel would give the researcher more information about your background/upbringing:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you in advance for the completion and return of this survey!

Please do not forget that your participation in this study is completely voluntary and anonymous. However, the return of your completed survey indicates your consent to participate in this research and the information you provide may be included in this study’s results. Once you submit this survey to the drop box your responses cannot be excluded since they can’t be distinguished from other participants’ results. If you wish to enter the draw for the $75 Boston Pizza certificate, please include your contact information on the tear away portion of the information letter attached to this survey or email the researcher at jdyer@sd70.bc.ca with your request to be entered, your name and phone number.
Appendix B – Facebook Post

As part of obtaining my Master’s Degree in Educational Leadership at Vancouver Island University, I am conducting a survey to examine the relationship between grittiness, other character traits, and past experiences to life successes. If you would like to learn more about this study and consider filling out a survey that will help me collect data to analyze the relationship between grit and success, please click the following link:

If you would like to be entered to win a $75 Boston Pizza Gift Certificate, you will find information indicating how to be entered at the end of my survey. Please feel free to share this link with family and friends.
Appendix C - Information Letter for Participants (Online)

Principle Investigator: Jelena Dyer, Teacher, SD 70 Email: jdyer@sd70.bc.ca
Supervisor: Dr. Rachel Moll, Faculty of Education, Vancouver Island University, Phone: (250) 753-3245 (ext. 2161), Email: rachel.moll@viu.ca

Dear potential participant,

My name is Jelena Dyer. I have been a teacher in SD70 for eight years and am embarking on obtaining my Master’s of Educational Leadership from VIU. This research is being conducted in partial fulfillment of the requirements of this program. I am conducting a survey of adults to examine the relationship between grittiness, other character traits and past experiences. Grit is defined as a person’s ability to persevere to achieve very long-term goals. There is a lot of research that links this character trait with academic/life success. It is my goal as an educator to improve teaching practice in an area that needs work. We need to get gritty about making our students and children grittier. I believe the first step is figuring out what experiences and beliefs have helped adults to develop grit. We can then hopefully apply that knowledge to change how we teach in order to help children to develop grit.

The nature of this survey is completely anonymous. You should not write your name anywhere on the short answer sections. By submitting the survey, you indicate that you consent to use of the data you have provided for my research study. Once submitted, the data cannot be withdrawn. Until it is used, the data will be stored in a locked box in my home. The results of the study (including some quotes) will be shared online at viu.ca. Quotes that may contain identifying information will not be used.

Your information will be stored temporarily at the hostedincanadasurveys.ca server and will be transferred to the researcher’s computer. Both of these data centers are physically located in Canada and therefore not subject to the American Patriot Act. Your data will only be shared in this researcher’s thesis located at viu.ca. No personally identifiable information will be shared.

If you consent to your participation in this study, and are 18 years of age or older, please complete and submit the survey. If you would like to be eligible for the incentive of a $75 gift certificate to Boston Pizza, please email jdyer@sd70.bc.ca with a request to be entered in the draw. Please include your name and phone number in the email. Submission of the survey is deemed as giving consent. If you have any concerns about your treatment as a participant in this research, please contact the VIU Research Ethics Officer at reb@viu.ca or by telephone at (250) 753-3245 (ext. 2665)
Thank you for your time and consideration,

_________________________

Jelena Dyer (Teacher SD70)

“I understand the terms with which my information will be used and that I cannot withdraw my data once it has been submitted”

[ ] Yes  [ ] No