

**Beyond IQ:**  
**The Role of Grit, Mindset and Emotional**  
**Intelligence in Academic Achievement**

Submitted in partial fulfilment of the requirements of the Higher Diploma in

Psychology

At

Dublin Business School

Dublin

By

Yvonne Browne

Supervisor: Dr Pauline Hyland

Programme Leader: Dr Rosie Reid

March 2017

Department of Psychology

Dublin Business School

## Table of Contents

Acknowledgements & Dedication .....	4
Abstract .....	5
1 Introduction .....	6
1.1 The Intelligence Debate .....	6
1.2 A Broader Paradigm for Greatness .....	8
1.3 Grit .....	9
1.4 Emotional Intelligence .....	12
1.5 Mindset.....	15
1.6 Academic Achievement as a Measure of Success .....	17
1.7 Research Aims .....	19
2 Method .....	20
2.1 Participants.....	20
2.2 Design .....	21
2.3 Materials.....	22
2.3.1 Demographic questions.....	22
2.3.2 Grit measure.....	22
2.3.3 Mindset measure.....	23
2.3.4 Emotional intelligence measure.....	23
2.3.5 Qualitative measures.....	24
2.4 Procedure.....	24

3	Results.....	26
3.1	Descriptive Statistics.....	26
3.2	Inferential Statistics.....	29
3.3	Qualitative Analysis.....	33
4	Discussion.....	38
4.1	Summary of Findings.....	38
4.2	Implications.....	40
4.3	Strengths and Limitations.....	42
4.4	Future Research.....	44
4.5	Conclusion.....	45
5	References.....	46
6	Appendices.....	57
6.1	Appendix 1 – Information Sheet and Informed Consent.....	57
6.2	Appendix 2 – Demographic Questions.....	58
6.3	Appendix 3 – 12 Item Grit Scale.....	59
6.4	Appendix 4 – Theories of Intelligence (Mindset) Scale.....	62
6.5	Appendix 5 – Schutte Self-Report Emotional Intelligence Scale.....	63
6.6	Appendix 6 – Qualitative Questions.....	65
6.7	Appendix 7 – Closing Sheet & Contact Information.....	65
6.8	Appendix 8 – Summary Themes from Qualitative Data.....	66

## Acknowledgements & Dedication

I dedicate this research to my mum, Sheila Browne, who made many sacrifices to provide her kids with the best upbringing and education she could. Mum, your strength, resilience and attitude to life is the best example of 'true grit' I have seen, in particular these past few difficult months. I feel very proud and lucky to have you as my mum.

I would also like to thank my husband Brian who in many ways took on this crazy endeavour with me. Without your support this would not have been possible, thank you for your patience, help and encouragement throughout.

Thanks also to the friends, relatives and colleagues who reinvigorated me during many moments of self-doubt and procrastination. Thank you for keeping me going, and bringing a smile to my face.

Finally, I wish to express my sincere thanks to my supervisor Pauline Hyland, you deserve a medal for your boundless positivity, guidance and patience.

## Abstract

The aim of this study was to examine the relationship between non-cognitive constructs grit, emotional intelligence and mindset, and academic achievement. A mixed method design was employed comprising quantitative and qualitative data. Participation was voluntary and obtained from a convenience sample. The design was correlational with responses collected via an online survey. Measures included the 12-item Grit Scale, Schutte Emotional Intelligence Scale and the Theories of Intelligence Scale. The survey also contained qualitative questions to gain deeper participant insight. Statistical tests did not show significant support for the main hypothesis, however additional analysis and qualitative data evidenced support for the previous research. Findings included significant relationship with non-Irish participants, acknowledgement of grit, emotional intelligence and mindset as contributing factors to achievement, and gender differences in emotional intelligence. The main conclusion drawn is that IQ is not the sole determinant of success and additional research is required to further evidence.

# 1 Introduction

The purpose of this study is to examine whether there is a relationship between the constructs grit, emotional intelligence and mindset and how they influence success and achievement. In an age where artificial intelligence is dramatically changing the skills landscape, these competencies will become irreplaceable human advantages. Success for the purpose of this study will be defined by the level of academic achievement the individual has completed. To date limited correlations have been conducted on these three traits collectively in one study, and in particular a gap exists of this combination in an Irish setting. The value of this research lies in its potential to identify areas for further study for this combination of traits. This is important in order to support future strategies to nurture and embed these characteristics in government, education and society to help people achieve their full potential.

## *1.1 The Intelligence Debate*

The origin of greatness has caused intense debate, controversy and diversity of opinions. Scientists have been studying human performance for over 150 years (Galton, 1865) and historically cognitive intelligence was deemed the single best predictor of success in life. Psychologist Alfred Binet created the first Intelligent Quotient (IQ) test (Binet & Simon, 1916) and nowadays IQ testing using measures like Wechsler remain the most used method of comparing the ability of individuals.

One of the first major pieces of research to cast doubt on the fixation with IQ was a longitudinal study conducted by Lewis Terman in the early twentieth century. The study tracked the lives of mentally gifted children (Termites) over a number of decades, finding that intelligence when considered alone is not an effective predictor

of success (Terman, 1981). Individuals with a high IQ do not necessarily become successful and the most intelligent did not necessarily become the highest achievers.

This division of intelligences was supported by Robert Sternberg who created the Theory of Social Intelligence defining it as:

“1) the ability to achieve one’s goals in life, given one’s sociocultural context; 2) by capitalising on strengths and correcting or compensating for weaknesses; 3) in order to adapt to, shape, and select environments; and 4) through a combination of analytical, creative and practical abilities” (Sternberg, 2005, p. 189).

More recently Gardner (2006) proposed that interpersonal and intrapersonal intelligences are as important as the traditional view of intelligence measured by IQ.

Despite the lingering popularity of IQ scores and cognitive skills, a broader definition of intelligence is becoming more accepted. In 1996 the APA published a comprehensive Intelligence Task Force Report in response to controversial findings of the Bell Curve report. They concluded that standardised IQ tests do not sample all forms of intelligence and exclude creativity, wisdom, practical sense and social sensitivity, amongst others (Rushton, 1997).

Matt Ridley advocates intelligence that incorporates all abilities and skills developed from nature and genetics, in addition to the individual’s environment and external factors. He pioneered the term ‘Collective Intelligence’, stating that IQ is irrelevant and the most important skills in modern society are the ability to communicate and cooperate to achieve results (Ridley, 2000). Scott Barry Kaufman’s work in ‘The Complexity of Greatness’ (2013) is also gaining critical acclaim and paving the way for future researchers to further reconceptualise intelligence.

## 1.2 *A Broader Paradigm for Greatness*

The term ‘non-cognitive skills’ is used to contrast a variety of behaviours, personal characteristics and attitudes with the traditional cognitive ability skills such as literacy and numeracy which are measured by academic tests. The concept was introduced by Bowles and Gintis (1976) who highlighted the role of attitudes, motivation and personality traits, rather than academic skills, as determinants of labour market success. Their findings have been reinforced by more recent studies (Farkas, 2003; Heckman, Stixrud & Urzua, 2006), which have demonstrated the significant role of non-cognitive skills over and above cognitive skills in shaping labour market outcomes, social behaviour, education and health.

The term ‘non-cognitive’, however, creates a false dichotomy between cognitive abilities and what are often seen as psychosocial or soft skills (Farrington et al., 2012). It is confusing to contrast cognitive and non-cognitive factors as “few aspects of human behaviour are devoid of cognition” (Borghans, Duckworth, Heckman, & Ter Weel, 2008, p. 974). In the following report, the term non-cognitive skills is used to maintain consistency with previous researchers. However, it is important to note that the categorisation of non-cognitive skills is complicated and contested and terms such as ‘character skills’, ‘competencies’, ‘soft skills’ and ‘life skills’ are also widely used.

In recent times non-cognitive skills are attracting more attention. Economist and Nobel laureate James Heckman (2008) argued that non-cognitive factors such as creativity, motivation, self-control and grit etc. are critical for success in school and the workplace. Nagaoka et al. (2013) created a non-cognitive framework encompassing mindset, soft skills and behaviours, social skills and academic performance into one comprehensive model to assess factors of performance and

success. Non-cognitive skills are increasingly considered to be as, or more important than, IQ or cognitive skills and there is growing attention from policy makers and employers on how such skills can be developed (Heckman & Rubinstein, 2001).

In a wide range of studies researchers have established a relationship between non-cognitive skills and academic outcomes (Jencks, 1979; Bowles & Gintis, 2002; Farkas, 2003; Lleras, 2008). Furthermore, these researchers have suggested that investing in the development of non-cognitive traits would yield high returns in future educational and employment outcomes, and help close the attainment gap between advantaged and disadvantaged young people (Heckman et al., 2006). A number of initiatives for example the Rainbow and Kaleidoscope projects in the US are broadening college admission tests to include practical and non-cognitive skills assessment. This study will investigate a subgroup of non-cognitive traits; grit, emotional intelligence and mindset, in more detail to contribute to expansion of these initiatives.

### *1.3 Grit*

The ideals of persistence and tenacity have existed as virtues since Aristotle. In modern times, the concept of grit can be tracked back to Galton who in 1889 wrote that the most eminent individuals in society are typically blessed with talent, zeal and a capacity for hard labour. Cox (1926) later identified common traits of 300 geniuses highlighting their perseverance, tenacity and doggedness. The 1985 study 'Success in College' continued this vein of thought demonstrating evidence that purposeful, continuous commitment to certain activities was the best predictor of success in college (Willingham, 1985).

More recently US psychologist, Angela Duckworth, has spearheaded grit as a central component of many facets of life success (Duckworth, 2016). Grit is an individual's passion for a particular long-term goal, coupled with a powerful motivation and perseverance to achieve their objectives. Duckworth defines grit as "sticking with things over the very long term until you master them. The gritty individual approaches achievement as a marathon; his or her advantage is stamina." (Duckworth & Eskreis-Winkler, 2013 p. 3). A key aspect to grit is the ability to continue despite obstacles or failures which may arise. Grit entails working strenuously toward challenges, maintaining effort and interest over years "despite failure, adversity, and plateaus in progress" (Duckworth, Peterson, Matthews & Kelly, 2007, p. 1087-1088). From 2007 to 2009 Duckworth created and refined the Grit Scale demonstrating consistent evidence for the relationship between grit and educational attainment, retention in college, and success in a national spelling bee competition (Duckworth & Quinn, 2009).

In Duckworth's 2014 'The Grit Effect' research, she conducted separate studies to assess the role of grit in retention in four different contexts: the military, workplace, high school, and marriage. In the US, 25% of students drop out of school before earning their high school diplomas, and dropout among students from disadvantaged minority backgrounds is twice that figure (Swanson, 2004). The study sought to confirm the predictive validity of grit for graduation over well-recognised established predictors like intelligence (Jimerson, Egeland, Sroufe & Carlson, 2000), race or gender (Jordan, Lara & McPartland, 1996), socioeconomic status (Rosenthal, 1998), or situational factors like parental or peer support (McNeal, 1999; Kasen, Cohen & Brook, 1998). Overall, the results indicated that gritty juniors were more likely to graduate from high school. Notably, the effect of grit on retention held

when controlling for academic conscientiousness, school motivation, situational factors, standardised achievement test scores, and demographic variables.

Many other studies exist which support the role of grit in life success and in particular academic achievement. A meta-analysis of 109 studies investigated whether psychosocial factors can predict college outcomes and found nine constructs which determined success including the individual's achievement motivation, goals and work ethic (Robbins, Lauver, Le, Davis, Langley & Carlstrom, 2004). This was reinforced by a whitepaper published by the Educational Research Institute of America (2014) which confirmed 6 main non-cognitive traits important in prediction of student success: Grit, Growth Mindset, Self Control, Goal setting, Social Intelligence and Delayed Gratification. In Ireland a recent study by Delaney, Harmon & Ryan (2013) on undergraduate study behaviours, comprising 4,700 students, found that students' non-cognitive traits, in particular conscientiousness and future-orientation, are important determinants of lecture attendance and additional study hours. They suggest there is very little that explains undergraduate study behaviour besides non-cognitive traits and standard economic factors, such as family income, financial aid and parental support, are not predictive of study behaviours.

A number of criticisms and gaps exist in the grit research. Some critics (Dumfart & Neubauer, 2016) believe grit is too similar to the Big Five Personality construct conscientiousness to be recognised as a separate entity and many studies have shown a strong correlation between these two concepts. A meta-analysis found that grit was functionally a measure of conscientiousness (Komarraju, Karau & Schmeck, 2009). A recent study of twins measuring both conscientiousness and grit found that they had a genetic correlation of 0.86 (Rimfield, Kovas, Dale & Plomin,

2016). Duckworth differentiates grit through the extreme stamina it implies, grit is not just about working hard on tasks at hand but, rather, working diligently toward the same higher-order goals over extremely long stretches of time. In line with the hypotheses of Paunonen and Ashton (2001), grit has demonstrated incremental predictive validity over and above conscientiousness for achievement outcomes and is more strongly associated with long term and multi-year goals such as education.

The relationship between grit and intelligence is also a topic of debate prompting the question as to why some individuals accomplish more than others of equal intelligence. A number of studies have found to be either orthogonal to or inversely correlated with intelligence (Duckworth, 2006; Heckman & Kautz, 2012; Kaufman, 2013). This means that grit, unlike many traditional measures of performance is not tied to intelligence. Grit and self-control are highly correlated in research however many gaps exist in the relationship between grit and other non-cognitive traits and the optimum developmental combination for sustained high performance. The aim of the current research is to examine grit with a number of other non-cognitive traits in the context of academic achievement.

#### *1.4 Emotional Intelligence*

Emotional intelligence (EI) is a relatively new construct that embraces the core concepts of the psychology of individual differences: Intelligence, Personality and Emotions (Izard, 2003; Cervone & Pervin, 2015). Building on the work of Thorndyke, Gardner and others, the last 30 years has seen increasing attention to the possibility that emotions may moderate intelligent behaviour through an individual's reaction to, and interpretation of information. Salovey and Mayer (1990) pioneered the modern concept of emotional intelligence defining it as, "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and

emotions, to discriminate among them and to use this information to guide one's thinking and actions" (1990, p.29). They viewed emotions as organised responses that incorporated many psychological disciplines including physiological, cognitive, motivational and experiential. The concept of emotional intelligence was catapulted into the public domain in 1996 by Daniel Goleman who claimed that IQ at best contributes approximately 20% of the factors that contribute to life success, leaving 80% to emotional intelligence and other forces. Goleman's model builds on the work of Salovey and Mayer comprising four domains of emotional intelligence: self-awareness, self-management, empathy, and social skills.

Proponents of emotional intelligence point to the important adaptive advantages of emotional skills in meeting the challenges of everyday life. It is reported that individuals with high IQ enjoy more success in life than others who surpass them in mental intelligence (Salovey & Pizzaro, 2003; Cote, Gyurak & Levenson, 2010). Emotionally intelligent people work more effectively towards long term goals by being able to control impulses for immediate gratification (Gardner & Stough, 2002). A large body of evidence drawn from a variety of domains has found positive correlations between emotional intelligence and satisfaction with social relationships (Lopes, Salovey & Straus, 2003); subjective well-being (Kulshrestha & Sen, 2006); empathetic perspective and self-monitoring in social situations (Schutte et al., 2001) in addition to negative correlations with psychological distress (Slaski & Cartwright, 2002) and depression (Schutte et al., 1998).

Much of the research to date focuses on success in the workplace or improved personal relationships (Stein & Book, 2010). But research has not fully confirmed whether emotional intelligence can contribute to an individual's academic success. Goleman is a strong advocate of teaching emotional intelligence

programmes in schools from an early age believing it can improve academic performance. Many believe the school system is too focused on the traditional view of IQ and cognitive abilities alone. Goleman highlights a number of cases in his book where individuals with the highest IQ scores, were not particularly successful compared to their lower scoring peers in terms of salary, productivity or status in their field (Goleman, 1996).

There is limited scientific evidence to date of a confirmed relationship between EQ and academic achievement, over and above intelligence or other personality traits. A study by Parker, Summerfeldt, Hogan & Majeski (2004) examined the relationship between emotional intelligence and academic achievement in 372 students in the US. Student's completed the Schutte Emotional Intelligence Scale at the beginning of the year and at the end of the year the data was matched with the students' academic record. Results showed that academic success was associated with several dimensions of emotional intelligence, however results could not be isolated to EQ alone. Barchard (2003) supported this perspective concluding that only some measures of emotional intelligence predicted academic success, and none of these measures showed incremental predictive validity for academic success over and above cognitive and personality variables.

Some psychologists believe the concept of intelligence is being stretched too far from its original focus on mental ability (Matthews, Zeidner & Roberts, 2004). They propose a different term such as emotional competence to distinguish from the traditional mental skills. However if intelligence is regarded as adaptive ability, it should not be limited to the purely cognitive realms of human ability and further research is required to explore the potential of emotional intelligence to academic

performance. Therefore the current research will try to gain a better understanding of this relationship in an Irish setting.

### *1.5 Mindset*

Positive Psychology has been defined as the study of the strengths and virtues that enable individuals, communities and organisations to thrive (Gable & Haidt, 2005; Sheldon & King, 2001). Famed Stanford psychologist, Carol Dweck has developed this movement focusing on implicit theories of intelligence and the effect of an individual's mindset on their performance and life success. A person's mindset can be defined as the set of beliefs that person has about themselves (Burns, 1982; Dweck, 2000). Dweck's book (2006) posits that there are two basic mindsets that control how most people see themselves. Those who believe that their intelligence and qualities are innate and unchangeable attributes are said to have a fixed mindset, and those who believe that one's basic qualities, skills and intelligence are things that can be cultivated through effort and perseverance are described as having a growth mindset (Dweck, 2006; Cohen & Garcia, 2012; Yeager, Paunesku, Walton & Dweck, 2013).

The key to growth mindset is the belief that intelligence is malleable and as such can be developed. While those with a fixed mindset generally avoid failure or challenges as they believe it can expose perceived weaknesses and wish to maintain an aura of infallibility. Those with a growth mindset believe in progress not perfection and see challenge as an opportunity for learning and stretching oneself. Individuals may not necessarily be aware of their own mindset, but their mindset can still be discerned based on their behaviour. In Dweck's words, "a belief that your qualities can be cultivated (growth mindset) versus a belief your qualities are carved

in stone leads to a host of different thoughts and actions taking you down an entirely different road” (Dweck, 2012, p.614).

There are a significant number of studies that detail the positive effects that a growth mindset has on student performance and overall academic achievement levels (Aronson, Fried & Good, 2002; Dweck, 2006; Kornilova, Kornilov, & Chumakova, 2009; Steinmayr & Spinath, 2009). Students who develop a growth mindset have been shown to be more motivated to learn, work harder, are less discouraged by challenges and use more effective strategies for learning (Cury, Elliott, Da Fonseca, & Moller, 2006). They also achieve higher academic performance in comparison with students who hold a fixed mindset (Walton & Cohen, 2011; Choi, 2014). In the U.S., Dweck and associates (2006) found that when the growth mindset was nurtured in students, they embraced the learning process and when faced with challenges or mistakes, students persevered to a higher degree than students who held a fixed mindset. The Heroic Imagination Project in the US is also undertaking a highly effective mindset intervention program for students (Zimbardo, 2011.) Two additional studies in the U.K. conducted by Romero, Paunesku, & Dweck (2010) and Paunesku, Goldman & Dweck (2011), also demonstrate the positive effects of a growth mindset intervention on academic performance with improved test scores in maths and reading following mindset interventions. In Ireland mindset research involving intervention training in education is underway by a number of researchers (Murphy et al, 2014; Fitzgerald & Frazer – in progress Trinity College, Dublin).

More recently researchers are starting to probe deeper into the mindset perspective. It has been criticised for ignoring the advantages of talent, personality and other socio economic factors. Talent can play a key role, for example as a head start (this is demonstrated in some of the studies on golfing and deliberate practice

(Ericsson, 2006)) or in edge cases of absolute peak performance for example sprinter Usain Bolt– mindset alone has not been proven as the main contributing factor in these circumstances (Joyner & Coyle, 2008). However Dweck firmly believe that talent plays a smaller role than mindset and hard work in long-term success. How mindset blends with other personality traits and external factors to optimise peak performance and help individuals achieve their potential remains a gap. Duckworth has suggested a combination of grit and mindset can be very powerful for success, however these combinations have limited empirical evidence to date. From the evidence on mindset alone to date, combining it with other non-cognitive traits and studies which may improve education levels is worthy of further research. Consequently the current research will examine the combination of grit, emotional intelligence and mindset with levels of academic achievement.

### *1.6 Academic Achievement as a Measure of Success*

A well-educated population is essential for a country's social and economic well-being. Education greatly improves the likelihood of securing employment and financial stability (Graham & Paul, 2010) and is increasingly important as the labour market requires more knowledge based skills (Accenture 2013, Skills Survey). In Ireland 75% of the population complete secondary school however only 40% progress to third level (OECD). To continue to compete in the global economy it is critical to reduce this gap and therefore a broader understanding of the factors which influence an individual's level of academic achievement is required, hence why this has been selected as the measure of success for this study. Other measures of success can include career, happiness, health etc., however these often require a longitudinal study.

Traditionally college academic success and retention have been predicted using demographic and academic variables (Pritchard & Wilson, 2003). However, factors other than intellect have been identified in many studies as influencing student success and performance (Wolfe and Johnson, 1995; Paunonen and Ashton, 2001; Duckworth and Seligman, 2005; Moffitt et al, 2011). While Ireland's education system arms graduates with the cognitive skills required for entry into the workplace, it is the non-cognitive factors such as attitude, mindset, grit and emotional intelligence that enable them to grow and flourish (Farrington et al, 2012) – skills and competencies that are developed through nurturing a broader personal development and definition of intelligence during the formative years.

Socrates said education is the 'kindling of a flame, not the filling of a vessel'. And while no one would argue against the importance of strong cognitive skills, the current system focused on memorising long syllabus for solely cognitively orientated exams is not achieving the best results (Harford, 2010). In fact this narrow focus exacerbates the growing issue in Ireland's education system and indeed across society of valuing the score and result over the effort, hard-work and perseverance that goes into achieving the result (Dweck, 2006; Cohen & Garcia, 2012; Dickerson, Wilkins & Zimbardo, 2013). In August 2013, the U. S. Department of Education approved an application from a consortium of Californian school districts to implement a new school measures system with only 60% allocated to traditional cognitive tests and the balance to measures of student social-emotional development. It is hoped that with further research and focus, more schools will adopt broader interventions and measurement systems to develop and recognise the full range of strengths, skills and passions of their students.

### *1.7 Research Aims*

As outlined there is much evidence supporting the constructs of grit, emotional intelligence and mindset individually and how they influence success and achievement. However limited correlations have been conducted on these three traits collectively in one study, and in particular a gap exists of research investigating their relationship with levels of academic achievement. This is increasingly important for Ireland to continue to compete in the global economy as the labour market requires more knowledge based skills and competition increases from developing economies (Accenture 2013, Skills Survey). Therefore this study aims to explore if there is a significant relationship between grit, emotional intelligence, mindset and academic achievement, as key constructs that are associated with success in the twenty first century.

#### ***Hypothesis One:***

It is predicted that there would be a significant relationship between high levels of grit and high levels of academic achievement.

#### ***Hypothesis Two:***

It is predicted that there would be a significant relationship between high levels of emotional intelligence and high levels of academic achievement.

#### ***Hypothesis Three:***

It is predicted that there would be a significant relationship between growth mindset and high levels of academic achievement.

## 2 Method

### 2.1 *Participants*

Participants consisted of a convenience sample from the general population of 164 valid responses ( $N = 164$ ), comprising of both males and females. Participants were recruited through a link to an online survey which was posted and shared on the social networking website Facebook, creating a snowball effect. Over forty connections shared the survey via Facebook hence accessing a much broader pool of participants and increasing the volume of responses. No direct email or other collection methods were required. Refusal or dropout rates were not recorded due to the optional online method of recruiting participants.

The survey was open to all individuals over the age of 18. Participation was voluntary and anonymous, with no capture of identifying information or logins required. Research was conducted within group as it tested the same participant group comparing individual's correlations across variables, and therefore no control group was required. From the sample of 164, females represented 73% while males represented 27%. The median age group was 3.00 reflecting the third age group category (aged 35-44).

A key focus was the level of participant's academic achievement, with the median education level of the participants recorded as 5.00 indicating third level degree and an overall highly educated participant group. An additional twenty participants completed the demographic questions only as the survey had been updated to request responses from individuals with no third level education due to lack of responses from this particular group. These participants are deemed invalid

as they did not complete the core variable measure questions and are not included in this report.

## 2.2 *Design*

A mixed method correlational design was employed for this research as the most suitable option, comprising of both quantitative and qualitative data. Correlational designs search for relationships between variables, as opposed to causation. The criterion variable selected (CV) is academic achievement as measured by the level of education award participants have achieved to date. The predictor variables (PV) selected are grit, emotional intelligence and mindset.

A survey was designed in Microsoft Word and then copied into Google Forms online platform. The cover and information page contained a brief description of the research, a consent check box, and contact information for any questions or issues. The title of the study was changed to ‘A study in human performance traits underpinning success and achievement’ – this was to avoid any bias from participants if they were aware of the specific psychological variables being tested (grit, emotional intelligence and mindset) or aware that level of education was being used as a measure of success. The survey contained 5 core sections, one on demographic questions, three sections for the scale measures for grit, emotional intelligence and mindset respectively, and a last section for qualitative questions. On completing the survey participants accessed a closing page with thank you and support details for the Samaritans in case the survey raised any personal issues for the individual.

### 2.3 *Materials*

Materials used by the participants were laptop or a personal computer and access to Facebook initially to receive the link. Materials used by the experimenter were a word document containing the relevant scales and measures outlined below, Google Forms survey site, Facebook and their personal laptop. Questions were modified in the online version of the survey prior to its launch to include a ‘do not wish to respond’ option so as not to enforce a particular answer on individuals.

#### 2.3.1 *Demographic questions.*

Demographic information was gathered in the first section of the survey including gender, age, nationality, marital status, employment status and number of children. The measure of ‘success’ for this study, level of academic achievement, was also listed here. Respondents had to select their highest level of education completed to date from one of seven options: primary school, secondary school (Junior Certificate level or equivalent), secondary school (Leaving Certificate level or equivalent), third level certificate or diploma, third level degree, third level masters, and third level PHD/doctorate. The broader demographic information was deemed important so as to identify any gaps in the research coverage in order to later generalise any findings to broader population and to gain further insight into the participants.

#### 2.3.2 *Grit measure.*

The first measure was the Grit scale (using the 12-item Grit Scale by Duckworth, Matthews and Kelly, 2007). This scale contains twelve questions and seeks to understand the level of perseverance and passion towards long term goals of the individual. There are twelve items in the measure, six relating to Consistency of Efforts with the remaining six categorised as Perseverance of Effort. Written

instructions provided to participants were per the author's guidance as follows:

“Please respond to the following 12 items. Be honest, there are no right or wrong answers”. Participants were required to choose one response to each question from a 5-point Likert scale. The response options ranged from ‘Very much like me’ to ‘Not much like me at all’. Previous research has outlined Cronbach's Alpha for the scale of .77 demonstrating strong reliability and validity.

### 2.3.3 *Mindset measure.*

The Theories of Intelligence (Mindset) questionnaire was used to assess the participant's mindset levels and the influence this may have on their academic achievement. A short version of the measure by Dweck & Zimbardo (2006) consisting of eight questions was used, four of which are growth mindset questions and four of which are fixed mindset questions. Each question is rated on a scale of 1-5 with 1 corresponding to Strongly Agree and 5 Corresponding to Strongly Disagree. Reliability using Cronbach's Alpha for this scale is .85. Participants were instructed to select the number that most appropriately reflected their opinion. Once again they had the option to not respond to the question and were advised there were no right or wrong answers.

### 2.3.4 *Emotional intelligence measure.*

Finally the Self-Report Emotional Intelligence Test by Schutte et al (1998) was employed to assess the participant's level of emotional intelligence. The 33-item measure stems from the EI model by Salovey and Mayer (1990) and uses four sub-scales: emotion perception, utilising emotions, managing self-relevant emotions, and managing others' emotions. Answers are selected from a 1 (strongly agree) to 5 (strongly disagree) scale. This scale has a previously reported Cronbach's Alpha reliability of .84.

Each of the selected measures were also verified for use by the Dublin Business Schools research assistant and permission for use in academic research was confirmed. Copies of the survey questions and the three psychological measures are listed in the Appendix.

### 2.3.5 *Qualitative measures.*

The last survey section contained three open qualitative questions designed by the researcher directly to gain deeper insight into the participant's beliefs and attitudes towards the research variables. Fields for the qualitative responses were free text format with no character limitations.

## 2.4 *Procedure*

Prior to commencing data collection and the research study, full ethical approval for the study was received from DBS Psychology Research and Ethics Committees. Ethical factors considered in the research design included ensuring informed consent, confidentiality and anonymity, avoiding offer of any rewards or incentives, and adhering to the full guidance PSI Code of Ethics throughout. Once approval was granted, and the research approach confirmed, the outlined materials were combined into a single questionnaire hosted on Google Forms. Participants were informed about the survey through a public message shared with the researcher's connections on Facebook and containing the link to access the survey.

No preparation was required by the participants or no further instructions provided other than those outlined in materials section above. A link with contact details for the researcher and their supervisor was provided for any questions or issues however no queries were received. Halfway through the survey, the cover instruction was updated to ask individuals with no third level education only to

complete the survey to address some gaps in initial response coverage. After completing the survey participants received the thank you and support information page and all results were downloaded into a secure excel file. The quantitative results were coded and transferred to SPSS for statistical analysis and the qualitative results were separated into another file for thematic analysis.

### 3 Results

Quantitative analysis was used to explore the strength of the relationship between level of academic achievement and the predictor variables (grit, emotional intelligence and mindset). Additional analysis was conducted on the differences between variables, in addition to analysis of demographics e.g. gender and nationality. Tests were run using SPSS, with all scales checked for reliability. The Cronbach's Alpha score was over .75 for all three scales which is considered strong reliability (grit: .79, emotional intelligence: .91, mindset: .94). Thematic analysis (Braun & Clarke, 2006) identified the major themes arising from the qualitative responses to gain additional insight into the participant's views on human performance traits.

#### *3.1 Descriptive Statistics*

Descriptive statistics were run using SPSS. Information from participant demographics are presented in Figure 1 and Table 1 below, and the mean and standard deviation scores for psychological variables are presented in Table 2.

Of the 164 participants, 120 were female (73.2%) and 44 male (26.8%). From the group, 67 (40.9%) were aged 25-34 years old, 50 (30.5%) aged 35-44, 22 (13.4%) aged 45-54, 19 (11.6%) aged 55 and over, and 6 (3.7%) aged 18-24. 142 participants (86.6%) were Irish nationality with the remaining 22 (13.4%) originating from various destinations in the UK, Europe, North America, Central and South America, and Asia. 107 (65.2%) participants are married or in a domestic partnership, 52 (31.7%) are single, with the remaining 5 (3.1%) classified as widowed, divorced or separated. Employment status was also captured during demographics, 137 of the group (83.6%) were in fulltime employment, 8 participants

(4.8%) were out of work either actively seeking or not seeking employment, with the remaining 19 (11.7%) either fulltime homemakers, students or retired. 72 participants (43.9%) had no children, the remaining 92 (66.1%) with participants had 1-5 children with the mean across all participants as 1.2 children (1 child).

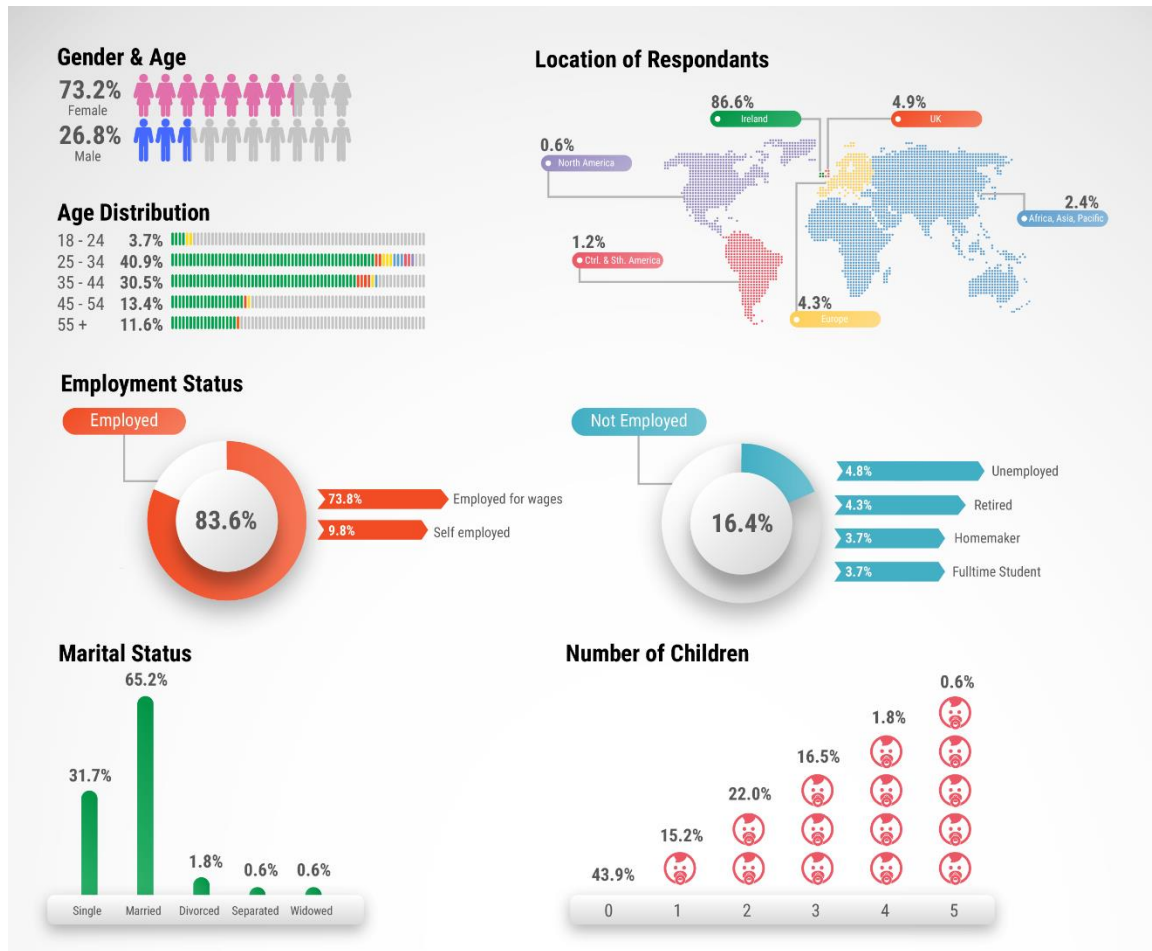


Figure 1: Summary of Respondent Demographics

Level of education was important for this study in order to understand the levels of academic achievement the participants had completed to date. A range of education levels was sought, and during the survey additional targeting on social media of participants with no third level education levels was sought. However the survey population was still heavily weighted towards those with higher levels of education (81.7% had completed some level of third level education), likely a

reflection of the researchers peer group and connections. Only 2 participants (1.2%) had attended primary school only, and 29 participants (17.1%) had completed up to secondary school levels. Breakdown of education levels is outlined in Table 1 below.

*Table 1: Frequency Table of Level of Education*

<b>Level of education</b>	<b>Frequency</b>	<b>Valid percent</b>
Primary school	2	1.2
Secondary school – Junior Certificate or equivalent e.g. O Levels completed	7	4.3
Secondary school – Leaving Certificate or equivalent e.g. A Levels completed	21	12.8
Third level education – certificate or diploma level	23	14.0
Third level education – primary degree level	50	30.5
Post graduate education – masters level	55	33.5
Post graduate education – PHD/doctorate level	6	3.7
<b>Total</b>	<b>164</b>	<b>100.0</b>

Mean, standard deviation, and minimum/maximum scores for each psychological measure is shown below in Table 2. The maximum score on the grit scale was 5 so the overall sample score was in the upper half of the scale ( $M = 3.57$ ,  $SD = .56$ ). The mindset scale operated to a total score of 6 and again the average score was in the upper second half of the scale indicating moderately high levels of growth mindset in the group ( $M = 4.09$ ,  $SD = 1.15$ ). Lastly in the emotional intelligence scale, which operated on a cumulative score basis with a maximum total score of 165, participants scored an average of 125 ( $M = 125.15$ ,  $SD = 13.49$ ) and a minimum and maximum range of 64-157. The relatively low standard deviations in these results demonstrates that participant's responses were broadly clustered with limited outliers. This may be due to the strong levels of education and homogeneity of the group.

*Table 2: Descriptive Statistics of Psychological Measures*

<b>Variable</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Minimum statistic</b>	<b>Maximum statistic</b>	<b>Cronbach's alpha</b>
Grit	3.57	0.56	1.50	4.83	0.79
Mindset	4.09	1.15	1.00	6.00	0.94
Emotional Intelligence	125.15	13.49	64.00	157.00	0.91

### 3.2 Inferential Statistics

While data was normally distributed, non-parametric tests were required for primary hypothesis analysis due to the ordinal criterion variable and the focus on relationships between variables. To explore the strength of the relationship between the selected variables, Spearman's rho correlation was selected as the most appropriate test. By way of additional analysis, a number of other tests including One-way ANOVA were conducted.

#### ***Hypothesis One:***

*There will be a significant relationship between high levels of grit and high levels of academic achievement.*

A Spearman's rho correlation found that there was no significant relationship between grit and level of education ( $r_s(164) = -.09, p = .245$ ). Therefore, the null hypothesis can be accepted as no significant relationship between grit and level of education can be statistically supported from this research.

***Hypothesis Two:***

*There will be a significant relationship between high levels of emotional intelligence and high levels of academic achievement.*

A Spearman's rho correlation found that there was no significant relationship between emotional intelligence and level of education ( $r_s(163) = -.01, p = .874$ ). Therefore, the null hypothesis can be accepted.

***Hypothesis Three:***

*There will be a significant relationship between growth mindset and high levels of academic achievement.*

A Spearman's rho correlation found that there was no significant relationship between growth mindset and level of education ( $r_s(164) = -.002, p = .976$ ). Therefore, the null hypothesis can be accepted, the alternative hypothesis must be rejected.

For each hypothesis a second validation was run by grouping the education levels into three groups instead of seven. Group 1: primary and secondary levels of education only, Group 2: undergraduate third level education only and Group 3: post graduate third levels of education. This was to increase the numbers in the smaller education responses groups as outlined in the descriptive statistics. Results again proved insignificant statistically.

While results for the main hypothesis were not statistically significant, the more detailed analysis indicates a small increase in levels across all three variables as outlined by Figure 2 below, symbolising a level of relationship. However there

was not enough results at the lower levels of education to validate this comprehensively.

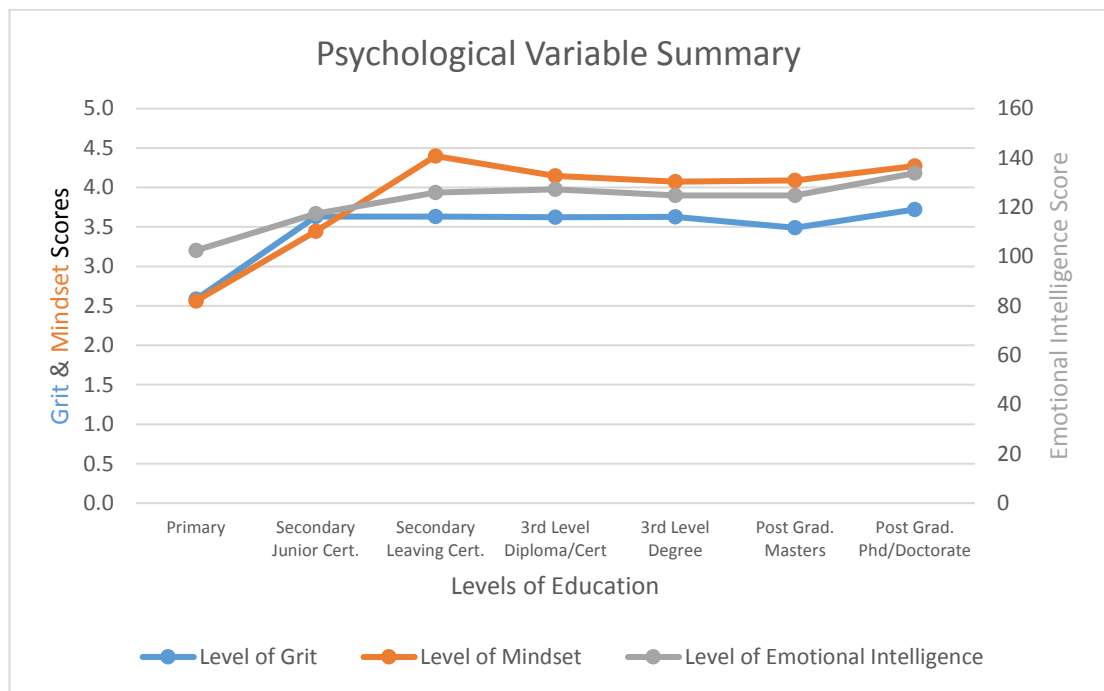


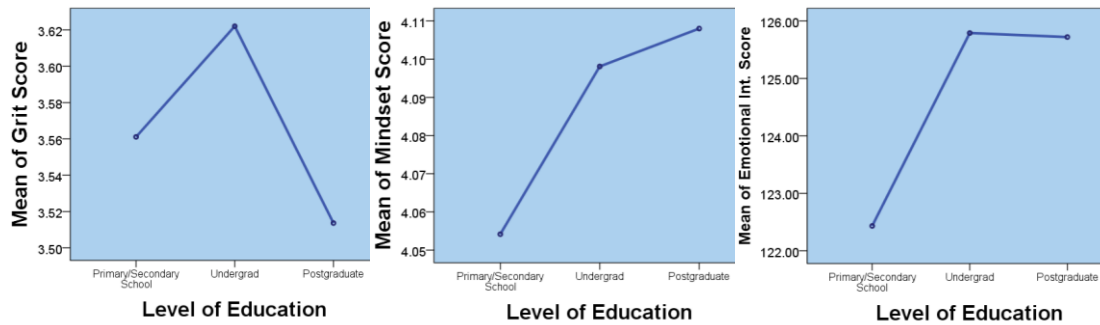
Figure 2: Chart of Grit, Mindset & Emotional Intelligence Scores by Education Level

## Additional Analysis

### One-Way ANOVA

One-way ANOVA's were run to assess if any significant differences existed between the three predictor variables and the different education groups. Results showed no significant differences were found between different educational groups for any of the three psychological variables: Grit: ( $F(6, 157) = 1.45, p = .200$ ), Mindset: ( $F(6, 157) = 1.27, p = .278$ ), Emotional Intelligence: ( $F(6, 157) = 1.92, p = .081$ ). However all three measures demonstrated some differences as the mean level of grit, mindset and emotional intelligence did increase across higher educational levels as outlined in Figure 3 below. The means for emotional intelligence and

mindset were both higher at third level undergraduate and post graduate levels than at primary or secondary education level which demonstrates higher levels of the psychological traits did exist for higher levels of education. The grit mean score was again higher at third level undergraduate level but decreased for postgraduate level.



*Figure 3: Mean Scores for Grit, Mindset and Emotional Intelligence for Regrouped Education Levels*

## Additional Findings

### Nationality

By splitting the participants into two groups of Irish and non-Irish, a one-way ANOVA showed a significant difference for levels of education with each of the three psychological variables for non-Irish participants: Grit: ( $F(2, 19) = 6.70, p = .006$ ), Mindset: ( $F(2, 19) = 3.86, p = .039$ ), Emotional Intelligence: ( $F(2, 19) = 10.02, p = .001$ ). No significant difference was found amongst Irish respondents. The updated mean scores for non-Irish specifically are reflected by Figure 4 below. There is no drop off in the grit mean score at third level postgraduate level as seen in the earlier analysis. This group were only 13.4% of the participant population however.

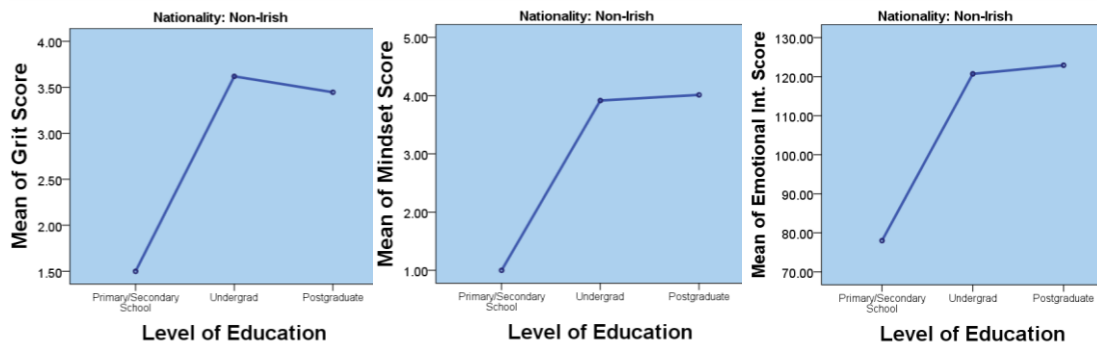


Figure 4: Mean Scores for Grit, Mindset and Emotional Intelligence for Non-Irish Participant Group Only

### Other Demographic Analysis – Gender

An independent samples t-test was conducted on gender and each of the predictor variables. Emotional intelligence showed a significance with females (M=127.3, SD=11.1) higher than males (M=119.3, SD=17.4) ( $t(56)=2.84, p < .01$ ) Grit and mindset showed no significant difference between genders.

### 3.3 Qualitative Analysis

As achievement and success are unique to each individual, the researcher included additional qualitative questions to enrich the quantitative findings in this study. Thematic analysis (Braun and Clarke, 2006) was used to identify, analyse and report on key patterns and themes. The themes aimed to capture something important about how people define success in their life, and the characteristics and obstacles which they believe can determine success or failure. 162 of the 164 participants completed some or all of the qualitative questions.

Themes were identified in a both top-down (deductive) and a bottom-up (inductive) manner. The deductive manner was where codes were developed to signify meanings of success. Whereas, with the inductive approach further codes

were developed to encapsulate the participants views on the characteristics and obstacles which could lead to success and life goals. Coding was conducted at both a semantic-explicit level based on participant responses and also a latent-interpretive level identifying underlying ideas and patterns.

Some of the steps were actively reading the dataset through entirely a number of times in order to become more acquainted with the dataset. Initial codes were then created and coding of each participant response began. Subsequently codes were revised and refined further. Codes were then sorted into potential themes which were then reviewed, refined and named. Presented below are the main themes identified.

### **Theme 1 – Education level is not a predominant measure of success**

Responses to how participants define success varied, reflecting the personal nature of how individuals define achievement in their own lives. In total 14 main themes of success measures were derived, from a subtotal of almost 50 different codes. The top five themes with the most cumulative references by participants were as follows: Family (102 references), happiness (85 references), career (58 references), money (58 references) and health (31 references). Education placed sixth with 26 references. This illustrates that many of the individuals who responded to this research did not categorise education or academic achievement as a predominant measure of success in their own life. These themes are reflected by Figure 5 below and listed in Appendix 8.



Figure 5: Word Cloud of Participant's Measures of Success

## Theme 2 – Grit is the most important characteristic for success

An overwhelming majority of participants (over 87%) either fully or partially attributed success and achievement to traits which underpin Duckworth's grit construct. These included dedication, determination, diligence, passion, drive, perseverance, persistence and tenacity. Determination was the most common 'main factor' listed by participants, often followed by secondary traits. This supports the aim of this research in demonstrating the role of grit in achieving success and life goals. The stamina and perseverance components of grit were also well supported by participant's responses as illustrated below.

*“Persistence to keep going when the shine has worn off!” (Participant 19)*

*“Focus and determination towards the long term goal, and when the going gets tough keep going” (Participant 34)*

*“Dedication and sticking to something, overcoming adversity and hard times”*

*(Participant 106)*

### **Theme 3 – Non-cognitive factors contribute far more to success than IQ**

Over 443 references and response codes asserted the role of non-cognitive factors in success and achievement versus 70 response codes related to IQ or external factors. A broad range of non-cognitive factors were listed as important with grit, goal setting, positive attitude and facets of emotional intelligence the most predominant. IQ or traditional intelligence constituted less than 1% of the codes and themes, demonstrating the limited role individuals believe it plays in achieving life success. This supports the view of Goleman and others that factors such as emotional intelligence and mindset play a significantly higher role in academic achievement and other facets of life success than cognitive ability.

### **Theme 4 – Individuals with lower levels of grit, mindset and emotional intelligence often attribute success to external factors**

A small number of respondents listed external and environmental factors as the primary determinants of life success for example socio economic status, luck, support from family or friends and money. It is interesting that these individuals therefore view a large proportion of success as potentially beyond their immediate control or influence, and not differentiated by personality or individual non-cognitive traits.

A v-lookup in Excel cross correlated individuals who responded with external factors as their primary response with the participants mean grit, emotional intelligence and mindset scores and this group had a lower mean across all three traits to the full group outlined in descriptive statistics. This supports the mindset

theory and research that individuals who believe they can achieve more and that outcomes are not pre-determined often become more successful.

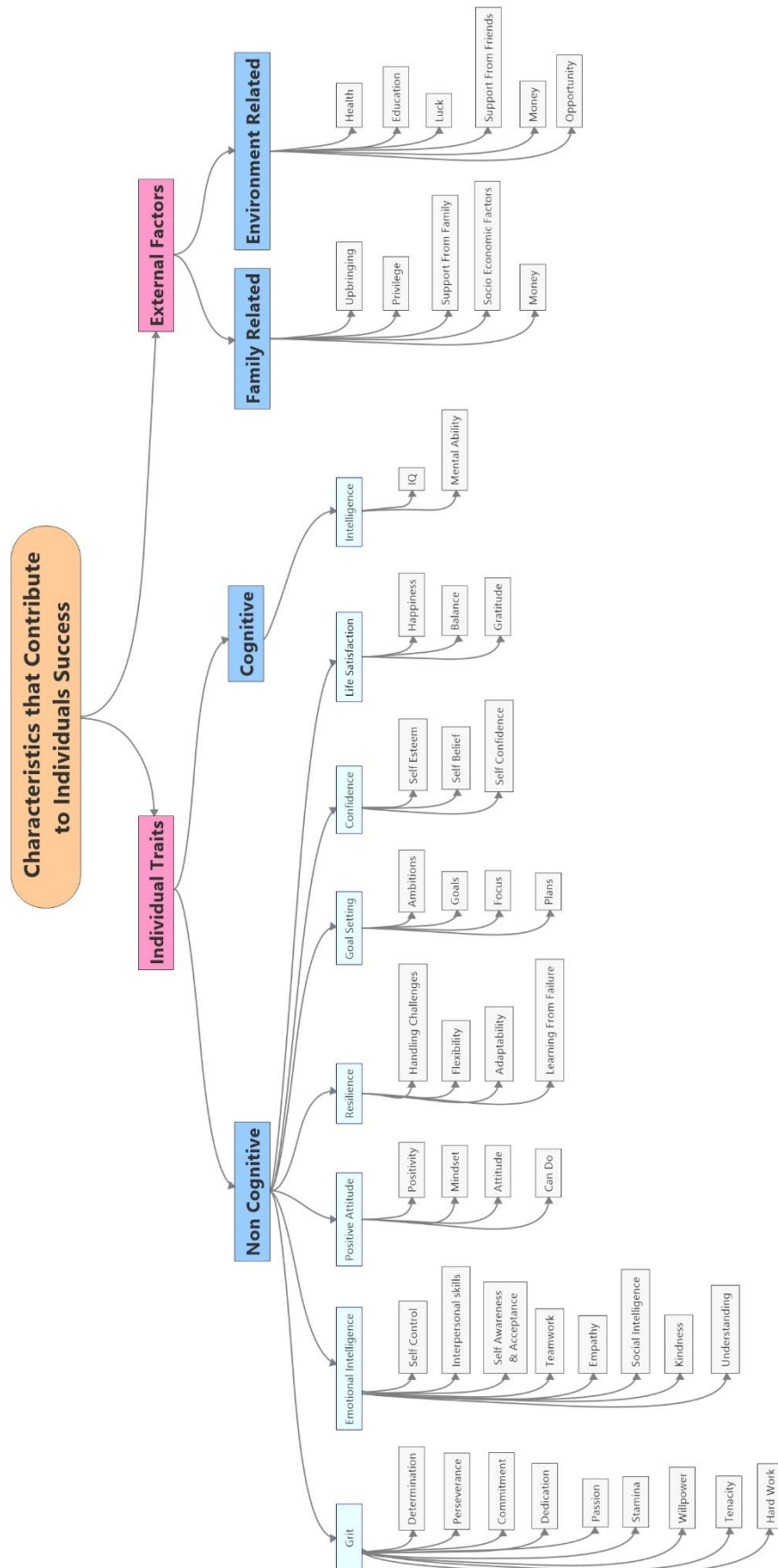


Figure 6: Mind Map of factors which contribute to success and achievement

## 4 Discussion

### 4.1 *Summary of Findings*

The primary aim of this study was to examine the relationship between the non-cognitive constructs grit, emotional intelligence and mindset with an individual's success as determined by their level of academic achievement. Each of these psychological variables have been previously linked to success and academic achievement.

Hypothesis one predicted that there would be a significant relationship between high levels of grit and a high level of academic achievement. Parametric and non-parametric tests were conducted, however the findings were not statistically significant enough to support the hypothesis and the null hypothesis must be accepted. Nevertheless, additional analysis found significant differences evidenced in non-national subset of participants, with levels of each psychological construct increasing monotonically in line with their level of education. Nationality was not a key focus area in the majority of the research conducted to date and therefore this finding could prove interesting for future research. This is particularly relevant given Ireland's increasing ethnic diversity with the 2011 census stating there has been an increase of 143% of non-nationals living in Ireland over the past decade.

The qualitative analysis established that participants believe grit is the most important characteristic to achieve goals or success. This supports much of the previous literature and emphasises the impact of grit on an individual's outcomes and achievement. The reason the results were not statistically higher in the quantitative data may be due to underrepresentation of individuals with lower education levels and the over representation of individuals with high levels of

education. As outlined in the introduction, 75% of Irelands population have completed secondary level education and 40% have progressed to third level however this was very different to the demographic of the survey population with only 17% finishing education at secondary level, and over 82% having completed third level or higher. This will be discussed further in limitations. This may also be due to the measure of success not being fully aligned with the participant's individual goals or values, for example the majority of participants classified items like family, happiness, income or career as more relevant levels of success than academic achievement. This is an interesting finding in that these areas may be more accurate measures to assess non-cognitive traits against in future research.

Hypothesis two predicted that there would be a significant relationship between high levels of emotional intelligence and a high level of academic achievement. Again a combination of parametric and non-parametric tests were conducted, no significance in the relationship could be reported and the null hypothesis cannot be rejected. The qualitative findings however highlighted participant's views that many components of emotional intelligence are deemed important for life success and achievement. Participants noted skills like interpersonal and intrapersonal skills (including teamwork), self-awareness and self-control, empathy, kindness and understanding as important traits that contribute to achievement. This aligns with the previous research on the components of emotional intelligence which contribute to success more than IQ by Goleman and others. While the main hypothesis findings do not support previous research findings, again this may be due to the limitations of the study. An interesting finding in additional analysis was the higher emotional intelligence levels in women over men, a trend

noted in previous research by Goleman but with limited evidence in an Irish setting to date.

Hypothesis three predicted that there would be a significant relationship between growth mindset and a high level of academic achievement. Again tests were conducted and no significance in the relationship could be reported, the null hypothesis was again accepted. The level of mindset for non-nationals specifically did again increase for higher levels of academic achievement, as outlined in hypothesis one. This warrants further investigation to assess if similar would be found in a larger population and to understand the rationale for the differences across nationalities.

It must be noted that although some of the results are not statistically significant in this study that is not to say they are not psychologically or socially significant. While the main hypothesis were not fully supported, it cannot be concluded that the variables are not related in particular when the additional analysis and the qualitative findings are taken into account. In any case the results suggest further research in this area would be valuable.

#### *4.2 Implications*

The core implication of this research study and its findings is that Ireland's education system is centred around a primarily IQ based measurement system which has limited ability to develop broader traits and individual potential. The area of non-cognitive traits is broadly researched and government policy and teaching practice should consider how to adapt the curriculum to start to offer a broader developmental and testing platform. As outlined earlier, some education programmes in the US are already starting to adapt by introducing measure systems with 60%

allocated to traditional tests and the balance to non-cognitive and social-emotional development. Goleman's work with schools is also gaining momentum, however he acknowledges the need for more long term focus to fully assess how much non-cognitive factors influence outcomes.

In reality IQ in the education system or in many other facets of life cannot be ignored completely as cognitive and non-cognitive factors continually interact in essential ways to create learning, and most researchers acknowledge that few human behaviours are devoid of cognition. However many of the studies outlined identified that success traits are often not tied to intelligence, for example grit which is orthogonal or even inversely correlated to traditional IQ. It is hoped that with further research and focus, more schools will adopt systems and interventions that address both cognitive and non-cognitive skills development and release the true potential of their students.

Broader awareness of non-cognitive traits and their influence on success and achievement in many aspects of life could play an important role in the workplace and in other aspects of personal development. Understanding how these traits can be developed successfully and creating accessible and effective intervention tools and techniques to inform and optimise these traits would be highly beneficial to many aspects of life. As outlined earlier, programmes like the Rainbow and Kaleidoscope projects in the US and the Heroic Imagination mindset initiative in the UK have already commenced this journey, however the coverage remains limited and many countries like Ireland are slow to follow.

Another interesting application aspect links back to Matt Ridley's nature nurture debate. Are constructs like grit truly non-cognitive traits which can be learnt

and developed, or do they form part of inherent personality traits like conscientiousness which are more innate, this question is not yet understood. Genetic correlations on grit like the twin studies outlined earlier would suggest there is a large innate element however many intervention programmes are yielding positive results so the jury remains undecided. Duckworth and others have opened a laboratory with the aim of investigating how malleable the construct of grit is, but research like this on other non-cognitive traits and with focus on long term and sustainable differences is required.

The differences between gender and nationality are also highly applicable to modern society, with the growing diversity of Ireland, and yet the omni-present biases and challenges that exist in embracing diversity and recognising different strengths and skills. With the rapid pace of change in digital and artificial intelligence, it is evident that non-cognitive traits are critical human advantage and need further investment.

#### *4.3 Strengths and Limitations*

The strengths of the study include combining the three different areas of research and three different variables that have been shown to be related to both success and achievement. Analysis of these three variables collectively has not been conducted in previous research so in effect is a gap in the literature. It is also a topic that interests people as a large response rate (for this level of research) was received in a short period and 162 of the 164 participants responded to the optional qualitative questions, which suggests an eagerness to give their thoughts on the area. Other strengths include adherence with PSI ethics, repeatability and reliability of the method and scales used and contribution to an important area of research in psychology.

In terms of limitations of this research study, a number were found which merit discussion. Firstly the method of recruiting participants via a non-probability convenience sampling method resulted in some gaps. The convenience sample is often referred to as a haphazard sample as it suffers from a number of biases for example it can lead to the under-representation or over-representation of particular groups within the sample. This can be seen in the significant over-representation of well-educated individuals responding to this research survey (almost 82% had some level of third level education) and the under-representation of individuals with lower levels of education. Also the split of Irish and non-Irish and the trends found in non-Irish results may warrant a higher spread of nationalities in future research (this study had 13% non-Irish participants). There was also an under representation in the 18-24, 45-54, and 55 and over age categories, this may be symptomatic of the social media forum used, The distinctly homogenous sample of the researchers peers and connections resulted in inherent population bias and limits the ability to generalise the study results to a broader population.

Academic achievement as a measure of success does not reflect the most important measure of success for the majority of the participants as illustrated by the qualitative data. This limitation may explain why levels of grit, emotional intelligence and mindset did not change significantly when evaluating the group with level of education as the criterion variable. For a more accurate study, it may be more appropriate to include only those who listed level of education or academic achievement as an important measure of success in their lives.

Lastly, the constructs of grit, emotional intelligence and mindset are still in their infancy and the debates on their measurement are ongoing. Consequently it is possible that current measures did not assess these variables adequately. These scales

also rely exclusively on self-report data which has been widely acknowledged as a limitation in the domain of performance characteristics. There are longer versions of all three scales available and perhaps these would have provided a deeper insight and measure of the participant's characteristics or if an intervention method had been selected. These limitations are important as while statistical significance may not have been found in some of the tests, this does not mean the hypothesis would not be evidenced in other samples.

#### *4.4 Future Research*

Future research would benefit from replicating this study with a larger and more heterogeneous sample, with a broader mix of education levels. The findings related to nationality and gender differences also warrant further research and probing related to their influence on academic achievement. Other factors which contribute to academic success should also be probed in more detail and ranking established amongst different groupings for example upbringing, income levels and what Duckworth refers to as other "social-psychological" barriers. There are gaps in the evidence as many studies define and measure non-cognitive skills in disparate ways, assess them in isolation, and focus on short-term outcomes. Priorities for future research should be to explore how skills can be transferred between areas of people's lives, and how far changes can be sustained in the long term. This would require improved methods of measurement for example interventions as part of longitudinal studies as opposed to self-reporting questionnaires.

Broader research on the constructs of grit, emotional intelligence and mindset related to other measures of success for example career level or life satisfaction may also warrant a better indication of their influence on individual goals and outcomes. In addition research should assess if these traits are more akin to stable personality

characteristics or malleable skills which can be developed. As outlined earlier some studies have already suggested grit is highly linked to or dependent on other characteristics like conscientiousness and self-control and the separation or relationships of these constructs requires deeper understanding.

#### *4.5 Conclusion*

The existing debate on non-cognitive skills implies there is one key factor for people to flourish. Whilst the narrative correctly emphasises the importance of non-cognitive factors, this research surmises there is no one trait that is the crucial “silver bullet” for predicting greatness. Participants viewed a broad range of traits and factors as critical to achievement, and identified areas other than education as their primary measure of success in life. Scores for all three psychological variables did increase across levels of education, however as outlined the study limitations restricted a full correlation in support of the hypothesis. Robust causal evidence on long-term outcomes is required in order to resolve the research gaps. Nonetheless, there are significant signs of promise and meta-cognitive strategies appear to be influential in improving academic outcomes. In conclusion, it is clear that IQ is not the sole determinant of success and the origin of achievement is far more nuanced and complex than any one trait or viewpoint can reveal. Future studies will help build the case to further reconceptualise the definition of intelligence.

## 5 References

- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, 38(2), 113-125.
- Barchard, K. A. (2003). Does emotional intelligence assist in the prediction of academic success?. *Educational and psychological measurement*, 63(5), 840-858.
- Binet, A., & Simon, T. (1916). *The development of intelligence in children: The Binet-Simon Scale* (No. 11). Williams & Wilkins Company.
- Borghans, L., Duckworth, A. L., Heckman, J. J., & Ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of human Resources*, 43(4), 972-1059.
- Bowles, S., & Gintis, H. (1976). *Schooling in capitalist America* (Vol. 57). New York: Basic Books.
- Bowles, S., & Gintis, H. (2002). Schooling in capitalist America revisited. *Sociology of education*, 1-18.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Burns, R. B. (1982). *Self-concept development and education*. Cassell.

- Cervone, D., & Pervin, L. A. (2015). *Personality, Binder Ready Version: Theory and Research*. John Wiley & Sons.
- Choi, J. (2014). *The Global Mindset of a Cross-Cultural Manager*.
- Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *science*, 313(5791), 1307-1310.
- Côté, S., Gyurak, A., & Levenson, R. W. (2010). The ability to regulate emotion is associated with greater well-being, income, and socioeconomic status. *Emotion*, 10(6), 923.
- Cox, C. M. (1926). *The early mental traits of three hundred geniuses* (Vol. 2). Stanford University Press
- Coyle, D. (2009). *The Talent Code: Greatest Isn't Born, It's Grown, Here's how*. Bantam.
- Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social-cognitive model of achievement motivation and the 2×2 achievement goal framework. *Journal of personality and social psychology*, 90(4), 666.
- Delaney, L., Harmon, C., & Ryan, M. (2013). The role of noncognitive traits in undergraduate study behaviours. *Economics of Education Review*, 32, 181-195.
- Dickerson, B., Wilkins, C., & Zimbardo Ph, G. (2013). *Constructing Psychological Interventions to Transform Education*.

- Duckworth, A. L. (2006). Intelligence is not enough: Non-IQ predictors of achievement.
- Duckworth, A. (2016). *Grit: The power of passion and perseverance*. Simon and Schuster.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of personality and social psychology*, 92(6), 1087.
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (GRIT-S). *Journal of personality assessment*, 91(2), 166-174.
- Duckworth, A. L., & Eskreis-Winkler, L. (2013). True grit. *The observer*, 26(4), 1-3.
- Duckworth, A. L., & Seligman, M. E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological science*, 16(12), 939-944.
- Dumfart, B., & Neubauer, A. C. (2016). Conscientiousness is the most powerful noncognitive predictor of school achievement in adolescents. *Journal of Individual Differences*.
- Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Psychology Press.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Dweck, C. (2008). Mindsets and math/science achievement.

- Dweck, C. S. (2012). *Mindset: How you can fulfil your potential. Constable and Robinson.*
- Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. *The Cambridge handbook of expertise and expert performance*, 38, 685-705.
- Eskreis-Winkler, L., Duckworth, A. L., Shulman, E. P., & Beal, S. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in psychology*, 5, 36.
- Farkas, G. (2003). Cognitive skills and noncognitive traits and behaviors in stratification processes. *Annual review of sociology*, 29(1), 541-562.
- Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2012). *Teaching Adolescents to Become Learners: The Role of Noncognitive Factors in Shaping School Performance-A Critical Literature Review*. Consortium on Chicago School Research. 1313 East 60th Street, Chicago, IL 60637.
- Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology?. *Review of general psychology*, 9(2), 103.
- Galton, F. (1865). Hereditary talent and character. *Macmillan's Magazine*, 12(157-166), 318-327.
- Garcia, J., & Cohen, G. L. (2012). A social-psychological approach to educational intervention. *Behavioral foundations of policy*. New York, NY: Russell Sage.

- Gardner, H. (2006). *Multiple intelligences: New horizons*. Basic books.
- Gardner, L., & Stough, C. (2002). Examining the relationship between leadership and emotional intelligence in senior level managers. *Leadership & organization development journal*, 23(2), 68-78.
- Goleman, D. (1996). *Emotional Intelligence: Why it can matter more than IQ*. London: Bloomsbury.
- Goleman, D. (1996). Emotional Intelligence. Why It Can Matter More than IQ. *Learning*, 24(6), 49-50.
- Graham, B., & Paul, C. (2010). Does higher education really lead to higher employability and wages in the RMI. *US Census Bureau Report*.
- Harford, J. (2010). Teacher education policy in Ireland and the challenges of the twenty-first century. *European Journal of Teacher Education*, 33(4), 349-360.
- Harmon, C., & Ryan, M. (2013). The role of noncognitive traits in undergraduate study behaviours. *Economics of Education Review*, 32, 181-195.
- Heckman, J. J., Stixrud, J., & Urzua, S. (2006). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor economics*, 24(3), 411-482.
- Heckman, J. J. (2008). Schools, skills, and synapses. *Economic inquiry*, 46(3), 289-324.

- Heckman, J. J., & Kautz, T. (2012). Hard evidence on soft skills. *Labour economics*, 19(4), 451-464.
- Heckman, J. J., & Rubinstein, Y. (2001). The importance of noncognitive skills: Lessons from the GED testing program. *The American Economic Review*, 91(2), 145-149.
- Izard, C. E. (2001). Emotional intelligence or adaptive emotions?.
- Jencks, C. (1979). Who Gets Ahead? The Determinants of Economic Success in America.
- Jimerson, S., Egeland, B., Sroufe, L. A., & Carlson, B. (2000). A prospective longitudinal study of high school dropouts examining multiple predictors across development. *Journal of school psychology*, 38(6), 525-549.
- Jordan, W. J., Lara, J., & McPartland, J. M. (1996). Exploring the causes of early dropout among race-ethnic and gender groups. *Youth & Society*, 28(1), 62-94.
- Joyner, M. J., & Coyle, E. F. (2008). Endurance exercise performance: the physiology of champions. *The Journal of physiology*, 586(1), 35-44.
- Kaufman, S. B. (2013). *The complexity of greatness: Beyond talent or practice*. Oxford University Press.
- Kasen, S., Cohen, P., & Brook, J. S. (1998). Adolescent School Experiences and Dropout, Adolescent Pregnancy, and Young Adult Deviant Behavior. *Journal of adolescent research*, 13(1), 49-72.

- Komarraju, M., Karau, S. J., & Schmeck, R. R. (2009). Role of the Big Five personality traits in predicting college students' academic motivation and achievement. *Learning and individual differences, 19*(1), 47-52.
- Kornilova, T. V., Kornilov, S. A., & Chumakova, M. A. (2009). Subjective evaluations of intelligence and academic self-concept predict academic achievement: Evidence from a selective student population. *Learning and Individual Differences, 19*(4), 596-608.
- Kulshrestha, U., & Sen, C. (2006). Subjective well-being in relation to emotional intelligence and locus of control among executives. *Journal of the Indian Academy of Applied Psychology, 32*(2), 93-98.
- Lleras, C. (2008). Do skills and behaviors in high school matter? The contribution of noncognitive factors in explaining differences in educational attainment and earnings. *Social Science Research, 37*(3), 888-902.
- Lopes, P. N., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality and individual Differences, 35*(3), 641-658.
- Matthews, G., Zeidner, M., & Roberts, R. D. (2004). *Emotional intelligence: Science and myth*. MIT press.
- Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence, 17*(4), 433-442.

- McNeal, R. B. (1999). Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social forces*, 78(1), 117-144.
- Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., ... & Sears, M. R. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, 108(7), 2693-2698.
- Murphy, J., Hyland, J., Hyland, P., Frazer, P., Reid, R., Walsh, M., & Dickersen, B. (2014). Piloting a growth mindset intervention for student success.
- Nagaoka, J., Farrington, C. A., Roderick, M., Allensworth, E., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2013). Readiness for College: The Role of Noncognitive Factors and Context. *Voices in Urban Education*, 38, 45-52.
- Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and individual differences*, 36(1), 163-172.
- Paunesku, D., Goldman, D. & Dweck, C.S. (2011). Preliminary report: East Renfrewshire growth mindset study. The Project for Education Research That Scales.
- Paunonen, S. V., & Ashton, M. C. (2001). Big five factors and facets and the prediction of behavior. *Journal of personality and social psychology*, 81(3), 524.

- Pritchard, M. E., & Wilson, G. S. (2003). Using emotional and social factors to predict student success. *Journal of college student development, 44*(1), 18-28.
- Ridley, M. (2000). *Genome*. Harper and Collins.
- Rimfeld, K., Kovas, Y., Dale, P. S., & Plomin, R. (2016). True grit and genetics: Predicting academic achievement from personality. *Journal of personality and social psychology, 111*(5), 780.
- Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis.
- Romero, C. L., Paunesku, D. & Dweck, C.S. (2010). Preliminary report: Crittenden middle school growth mindset study. The Project for Education Research That Scales.
- Rosenthal, B. S. (1998). Non-school correlates of dropout: An integrative review of the literature. *Children and Youth Services Review, 20*(5), 413-433.
- Rushton, J. P. (1997). Race, IQ, and the APA report on The Bell Curve.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality, 9*(3), 185-211.
- Salovey, P., & Pizarro, D. A. (2003). *The value of emotional intelligence* (pp. 263-278). na.

- Schulte, M. J., Ree, M. J., & Carretta, T. R. (2004). Emotional intelligence: Not much more than g and personality. *Personality and individual differences*, 37(5), 1059-1068.
- Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and individual differences*, 25(2), 167-177.
- Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedlicka, C. & Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *The Journal of social psychology*, 141(4), 523-536.
- Sheldon, K. M., & King, L. (2001). Why positive psychology is necessary. *American psychologist*, 56(3), 216.
- Slaski, M., & Cartwright, S. (2002). Health, performance and emotional intelligence: An exploratory study of retail managers. *Stress and Health*, 18(2), 63-68.
- Stein, S. J., & Book, H. (2010). *The EQ edge: Emotional intelligence and your success* (Vol. 25). John Wiley & Sons.
- Steinmayr, R., & Spinath, B. (2009). The importance of motivation as a predictor of school achievement. *Learning and Individual Differences*, 19(1), 80-90.
- Sternberg, R. J. (2005). The Theory of Successful Intelligence. *Journal of Psychology*, 39 (2), 189-202.

- Swanson, C. B. (2004). Who graduates? Who doesn't?: A statistical portrait of public high school graduation, class of 2001.
- Terman, L. M. (1981). *Mental and physical traits of a thousand gifted children* (Vol. 1). Stanford University Press.
- Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, *331*(6023), 1447-1451.
- Willingham, W. W. (1985). *Success in college: The role of personal qualities and academic ability*. College Board Publications, Box 886, New York, NY 10101.
- Wolfe, R. N., & Johnson, S. D. (1995). Personality as a predictor of college performance. *Educational and psychological measurement*, *55*(2), 177-185.
- Yeager, D. S., Paunesku, D., Walton, G. M., & Dweck, C. S. (2013, May). How can we instill productive mindsets at scale? A review of the evidence and an initial R&D agenda. In *white paper prepared for the White House meeting on "Excellence in Education: The Importance of Academic Mindsets," available at [http://homepage.psy.utexas.edu/HomePage/Group/YeagerLAB/ADRG/Pdfs/Yeager et al R&D agenda-6-10-13.pdf](http://homepage.psy.utexas.edu/HomePage/Group/YeagerLAB/ADRG/Pdfs/Yeager%20et%20al%20R&D%20agenda-6-10-13.pdf)*.
- Zimbardo, P. (2011). Why the world needs heroes. *Europe's Journal of Psychology*, *7*(3), 402-407.

## 6 Appendices

### 6.1 Appendix 1 – Information Sheet and Informed Consent

Beyond IQ – A study in human performance traits underpinning success and achievement

My name is Yvonne Browne and two years ago I embarked on a post graduate qualification in psychology.

As part of my course, I am conducting research that explores human performance and the characteristics which influence achievement and success, which will be submitted for examination. The goal is to help achieve a better understanding of the traits that can realise an individual's full potential and hopefully focus on better developing these traits in the next generation.

I would be very grateful if you would spare 10-15 minutes of your time by completing the enclosed survey. You must be over 18 years old to participate.

Participation is completely voluntary and so you are not obliged to take part. All participation is anonymous and confidential. Thus responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been collected. All data will be securely stored electronically on a password protected computer.

While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services are included on the final page.

Should you require any further information about the research, please contact me on  
My supervisor can also be contacted at

Your help to spread the word and help me get my quota of responses would be really appreciated.

Thank you very much

Yvonne

**It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study.**

\* Required

Do you consent to participate in this research? \*

Yes

No

## 6.2 Appendix 2 – Demographic Questions

- 1) Gender:
  - Male
  - Female
- 2) Age Group:
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55 and over
- 3) Nationality:
  - Irish
  - Other – please list
- 4) Marital Status:
  - Single
  - Married or domestic partnership
  - Widowed
  - Divorced
  - Separated
- 5) Employment Status:
  - Employed for wages
  - Self-employed
  - Out of work and looking for work
  - Out of work but not currently looking for work
  - A homemaker
  - A fulltime student
  - Retired
  - Unable to work
- 6) Do you have children:
  - Yes – list number
  - No
- 7) Level of Education (if currently attending, select the highest level completed to date)
  - Primary school
  - Secondary school – Junior Certificate or equivalent e.g. O Levels completed
  - Secondary school – Leaving Certificate or equivalent e.g. A Levels completed
  - Third level education – certificate or diploma level
  - Third level education – primary degree level
  - Post graduate education – masters level
  - Post graduate education – PHD/doctorate level

### 6.3 Appendix 3 – 12 Item Grit Scale

**Instructions:** Please respond to the following 12 items. Be honest – there are no right or wrong answers!

1. I have overcome setbacks to conquer an important challenge. \*
  - Very much like me
  - Mostly like me
  - Somewhat like me
  - Not much like me
  - Not like me at all
  
2. 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
  
3. My interests change from year to year.\*
  - Very much like me
  - Mostly like me
  - Somewhat like me
  - Not much like me
  - Not like me at all
  
4. Setbacks don't discourage me. \*
  - Very much like me
  - Mostly like me
  - Somewhat like me
  - Not much like me
  - Not like me at all
  
5. 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
  
6. I am a hard worker.\*
  - Very much like me
  - Mostly like me
  - Somewhat like me
  - Not much like me
  - Not like me at all
  
7. I often set a goal but later choose to pursue a different one.\*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

8. I have difficulty maintaining 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

9. I finish whatever I begin.\*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

10. I have achieved a goal that took years of work.\*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

11. I become interested in new pursuits every few months.\*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

12. I am diligent. \*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

**Scoring:**

1. For questions 1, 4, 6, 9, 10 and 12 assign the following points:

5 = Very much like me

4 = Mostly like me

3 = Somewhat like me

2 = Not much like me

1 = Not like me at all

2. For questions 2, 3, 5, 7, 8 and 11 assign the following points:

1 = Very much like me

2 = Mostly like me

3 = Somewhat like me

4 = Not much like me

5 = Not like me at all

Add up all the points and divide by 12. The maximum score on this scale is 5 (extremely gritty), and the lowest score on this scale is 1 (not at all gritty).

**Source:** Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 9, 1087-1101.

#### 6.4 Appendix 4 – Theories of Intelligence (Mindset) Scale

**Instructions:** This questionnaire has been designed to investigate ideas about intelligence. There are no right or wrong answers. We are interested in your ideas. Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

Response	Statements
	You have a certain amount of intelligence, and you can't really do much to change it.
	Your intelligence is something about you that you can't change very much.
	No matter who you are, you can significantly change your intelligence level.
	To be honest, you can't really change how intelligent you are.
	You can always substantially change how intelligent you are.
	You can learn new things, but you can't really change your basic intelligence.
	No matter how much intelligence you have, you can always change it quite a bit.
	You can change even your basic intelligence level considerably.

**Source:** Dweck, C.S. (2000). *Self-theories: Their role in motivation, personality and development*. Taylor & Francis: Philadelphia, PA.

### 6.5 Appendix 5 – Schutte Self-Report Emotional Intelligence Scale

**Instructions:** Indicate the extent to which each item applies to you using the following scale:

1	2	3	4	5
Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree

Response	Statements
	I know when to speak about my personal problems to others.
	When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.
	I expect that I will do well on most things I try.
	Other people find it easy to confide in me.
	I find it hard to understand the nonverbal messages of other people.
	Some of the major events of my life have led me to re-evaluate what is important and not important.
	When my mood changes, I see new possibilities.
	Emotions are some of the things that make my life worth living.
	I am aware of my emotions as I experience them.
	I expect good things to happen.
	I like to share my emotions with others.
	When I experience a positive emotion, I know how to make it last.
	I arrange events others enjoy.
	I seek out activities that make me happy.
	I am aware of the nonverbal messages I send to others.
	I present myself in a way that makes a good impression on others.
	When I am in a positive mood, solving problems is easy for me.
	By looking at their facial expressions, I recognize the emotions people are experiencing.
	I know why my emotions change.
	When I am in a positive mood, I am able to come up with new ideas.
	I have control over my emotions.
	I easily recognize my emotions as I experience them.

Response	Statements
	I motivate myself by imagining a good outcome to tasks I take on.
	I compliment others when they have done something well.
	I am aware of the nonverbal messages other people send.
	When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.
	When I feel a change in emotions, I tend to come up with new ideas.
	When I am faced with a challenge, I give up because I believe I will fail.
	I know what other people are feeling just by looking at them.
	I help other people feel better when they are down.
	I use good moods to help myself keep trying in the face of obstacles.
	I can tell how people are feeling by listening to the tone of their voice.
	It is difficult for me to understand why people feel the way they do.

**Scoring:** Reverse the numbers (1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1) in response to items 5, 28 & 33 and then add the numbers in front of all 33 items.

**Source:** Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, 167–177.

### *6.6 Appendix 6 – Qualitative Questions*

1. What is your main measure of success in your own life currently for example happiness, money, family, education or career achievement etc – please write all that are important to you
2. In your opinion what are the main characteristics that contribute to individuals achieving life goals or success?
3. In your opinion what are the main obstacles that contribute to individuals not achieving life goals or success?

### *6.7 Appendix 7 – Closing Sheet & Contact Information*

Thank you for taking the time to complete this survey, it is much appreciated.

If you feel that answering this survey has raised some issues for you, please consider speaking to a friend, family member or professional. There are general counselling support details below also as recommended for inclusion by our supervisors – Samaritans Freephone Helpline 116 123.

Thank you again

Yvonne

