

“From attainment to wellbeing, the power of mindset could be transformative...”

MIND OVER MATTER

Louis Reynolds
Jonathan Birdwell

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Contents

Acknowledgements	7
Executive summary	9
1 What is growth mindset?	21
2 The evidence for growth mindsets	29
3 Growth mindset case studies	47
Conclusion and recommendations	57
Notes	61
References	71

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Louis Reynolds
Jonathan Birdwell
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Executive summary

The accumulation of knowledge cannot be the sole foundation of young people's education, let alone their wider development. Their academic success, wellbeing and mental health depends not just on what they know, but on the development of their character, social intelligence, social and emotional skills, and a range of other non-academic traits and capabilities. These factors do define not just how they progress in school, but also how they interact with their families, their communities, and the wider world. In great schools and education systems, this has always been understood.

In recent years, significant focus has returned to the need for non-academic learning. Character education has gained cross-party support, and developing the character of young people in the UK will likely remain a key objective of the Conservative government's education policy for the duration of this parliament.

This new concern for wellbeing and character development has been driven by an increasingly robust body of research evidence, detailing not only how non-academic factors such as resilience, grit and empathy can have a profound impact on young people, but also how they can be actively developed through interventions inside and outside the classroom. One of the most promising areas of research related to the non-academic development of young people is that of mindset, based on the work of Stanford psychologist Carol Dweck.

The core idea behind mindset is simple. If we believe that our intelligence and abilities are not fixed at birth, but can be developed through effort – if we have a 'growth mindset' – then we are more likely to look for challenges, to see failures and setbacks as learning opportunities, and ultimately to achieve more personally and professionally. By contrast, if we have a

fixed mindset, we believe that our abilities are unchanging, see setbacks as negative judgements against us, and react badly to failure. There is a growing body of evidence to suggest that mindset affects diverse outcomes, from academic attainment to psychological wellbeing, from character capabilities to workplace skills.

If the increasingly robust research supporting mindset interventions provides an opportunity for a change in how we approach young people's development, then the low levels of wellbeing among our young people, and the significant attainment gap between the richest and poorest pupils, are serious reasons to change.

The Children's Society's recently released *The Good Childhood Report 2015* found that 'children in England have relatively low levels of subjective wellbeing', rating 14th out of 15 countries for life satisfaction.¹ English children also ranked lowest for self-confidence, and have low levels of satisfaction with their relationship with their teachers.² What is more, compared with children in other countries, English children do not like going to school, and are among the unhappiest children in the world.³ This matters in and of itself; as the educationalist Sir Ken Robinson has said, 'Education is not preparation. The first 18 years of life are not a rehearsal.' It may also be a drag on academic achievement.⁴

Growth mindset interventions might present part of the solution to this problem. The evidence presented in this report suggests that mindset development is not just a promising way to improve grades: it is a powerful way to develop healthier and more capable young people ready to meet the challenges of twenty-first-century life. As Oli de Botton of School 21, the Character Award-winning free school, put it to us, 'The people in school and in life who are valued are those that can show grit and resilience; who take on challenging tasks and do not give up when faced with setbacks, but instead continue to strive to develop.'

The evidence also suggests that growth mindset interventions can have a particularly profound impact on the most under-privileged groups, and those threatened by

stereotype, such as African-American students in the US education system, and women in science, technology, engineering and mathematics (STEM) subjects. In the UK, where the gap in academic attainment and life outcomes between rich and poor is wide, this is particularly important. Take the difference in GCSE attainment between those pupils who receive free school meals and those who do not. In 2013/14, some two-thirds (63 per cent) of students on free school meals did not achieve five A*-C grades in their GCSEs, compared with only one-third (35 per cent) of pupils not receiving free school meals.⁵ The Social Mobility and Child Poverty Commission has suggested that the non-cognitive and character development of young people should play a greater role in efforts to narrow this socio-economic attainment gap and boost social mobility. Here too growth mindset interventions are a promising solution.

Growth mindset can affect a wide range of behaviours, from sense of agency to self-confidence. If these interventions can help us raise academic attainment, tackle social immobility and improve the mental health of young people, then this potential needs to be explored further, with urgency and ambition.

This report

This scoping report, which accompanies a series of film packages that can be found at demos.co.uk/project/mind-over-matter/, explores the concepts behind, evidence supporting and application of growth mindset through qualitative and quantitative research.

It explains the key concepts in mindset, and describes why mindset matters in the development of young people in various areas, from their academic attainment to their social and emotional wellbeing, character capabilities and other life outcomes. It identifies where further research is required, and areas where innovative interventions might have a distinct impact.

Through a detailed review of the evidence base, it summarises the most significant research concerning the impact that growth mindset interventions can have on many outcomes. It further details the evidence on which groups can benefit most

from such interventions, and how those interventions can best be delivered. The evidence review includes forthcoming research by Dweck and her colleagues: a large scale study, based on survey data from 168,000 Chilean 10th-grade students, which will argue that mindset is as important a predictor of academic achievement as socio-economic background.⁶

This report further presents original data on mindsets in the UK, through nationally representative, original polling of 1,000 14–18-year-olds. These survey data shine a light on the happiness of young people, their perspectives of the malleability of their intelligence and abilities, and the levels of support they feel they receive from their school, parents and peers.

To build on our evidence review and explore how growth mindsets can be developed and curated in practice in education, business and local communities, we undertook a series of interviews, presented in both this report and the accompanying film packages. Our interviewees came from a range of backgrounds; they included frontline charity workers helping at-risk young people, business leaders developing new ways to work, and teachers implementing radical new approaches to education, all chosen on the basis of their expertise in or practical application of growth mindset in assorted formal or informal ways. Quotes from these interviews, addressing important themes or providing thought-provoking examples, are threaded throughout the report.

We interviewed:

- Ade Adepitan, wheelchair basketball Paralympic medallist
- Oli de Botton and teachers at School 21, an innovative free school in Stratford
- Richard Branson, founder of Virgin
- Carol Dweck, Stanford University, originator of the concept of growth mindset
- Leon Feinstein, head of research at the Early Intervention Foundation
- Georgia Gould and Martin Cresswell, Camden Council, who developed and run an intervention targeting the parents of disengaged young people

- Ruth Ibegbuna, Reclaim Project, a Manchester-based youth leadership charity for young people from disadvantaged backgrounds
- Pastor Mimi, Youth in Action, community worker responsible for supporting over 200 gang members to leave lives of crime
- Justin Packshaw, a former soldier, entrepreneur and explorer who has led expeditions to Everest, and the North and South Poles among other destinations
- James Probert, head of Impact, and corps member from City Year UK
- Richard Reed, founder of Innocent Drinks and JamJar Investments
- Rose and Louise, two mothers who took part in the Camden intervention
- Tom Thomas, trustee and facilitator with the charity The Key, working to unlock the potential of young people from disadvantaged backgrounds

The key concepts behind growth mindset are summarised in chapter 1. In chapter 2 we assess the evidence base, and explore what it tells us about the significance and implementation of growth mindset. In chapter 3 we examine real-world examples of the formal and informal application of growth mindset concepts within education and the wider community. The report concludes with some suggestions about how we can further improve our understanding of mindset, and how growth mindset interventions might play a role in youth development.

Our findings

Our review of the key evaluations and assessments on mindset suggests the following:

- *The evidence of a correlation between mindset and academic attainment is strong and well established.* Numerous studies over a long period of time have found a correlation between mindset and academic attainment across a range of areas and educational settings, from

school to university. Moreover, there is evidence to suggest that mindset can have an impact on the performance of teachers as well as students.

- *The evidence of a correlation between mindset and character capabilities, and of a correlation between mindset and mental wellbeing, is good.* There is a growing body of evidence to suggest there is a correlation between mindset and grit, persistence, conscientiousness, self-control and resilience. Moreover, while it is important to acknowledge that there is a distinction between mindset and individual character traits, they are often practically related; for example, a person with a growth mindset is less likely to give up when faced with a complex task, and therefore be more persistent.
- *There is some evidence that mindset impacts on workplace skills and career choices.* While the evidence on the correlation between mindset and factors related to the labour market and the work place are less developed, there is some evidence to suggest that mindset is related to a number of employment related outcomes, such as career decisions and the ability to negotiate effectively.
- *There is strong evidence suggesting that mindsets can be changed through interventions, and that these interventions can have a particularly profound impact on disadvantaged groups.* A large body of evidence suggests that mindsets can be fostered or taught through various interventions and educational settings. Such interventions have been found to have a particularly profound impact on ethnic minority pupils, and on women in STEM subjects. There is some evidence to suggest mindset interventions might have a particular effect on socio-economically disadvantaged pupils, but further research in a UK context is required.
- *While there is much evidence to suggest that mindset interventions are effective, there is little evidence on which types are the most effective.* Several limited growth mindset interventions, based on mentoring, workshops or online courses, have been evaluated

with largely positive results. However, there is little evidence about which type of intervention is the most effective or examining larger scale approaches.

- *The current evidence base regarding growth mindset is generally strong, but there are still some significant limitations in certain areas.* The current evidence base is overwhelmingly composed of evaluations of limited interventions in test conditions, with little assessment of ‘whole school’ or organisational approaches to growth mindset. There has been little examination of interventions outside the formal education system, where they might make an important contribution.

In addition to the findings of our evidence review, our survey generated a number of findings related to the mindset and wellbeing of young people in the UK, and the support they feel their families, peers and teachers provide them with. The survey found the following:

- *School leavers are far less happy than 14-year-olds.* 18-year-olds are half as likely to be happy as 14-year-olds (33 per cent against 60 per cent). In our survey, older respondents were generally less happy than younger respondents.
- *There are significant differences between the levels of happiness and resilience reported by girls and boys.* Females are less likely to report being happy than males (39 per cent against 50 per cent), and are more likely to be prone to feeling like failures when they fail at a task (68 per cent against 49 per cent).
- *School leavers are less likely to think that school prepares them for life, or that their parents and teachers think they will be successful.* School leavers are three times more likely than 14-year-olds to think that their school is preparing them for exams, not for life (31 per cent against 10 per cent). 14-year-olds are also much more likely than 18-year-olds to think that their teacher believes they will be successful (13 per cent against 5 per cent), and that their parents think they will be successful (10 per cent against 1 per cent).

- *School leavers are more likely to feel like a failure if they don't succeed at a task.* Two-thirds (68 per cent) of school leavers feel like a failure if they don't succeed at a task, compared with just under half (46 per cent) of 14-year-olds, suggesting that young people's resilience declines as they get older.
- *Levels of self-belief and life expectations are generally high.* Across all groups, life expectations are generally high: 88 per cent of 14–18-year-olds think they can be successful in life, and 62 per cent feel that they will be more successful than their parents; 88 per cent reported feeling supported by those around them to achieve their life goals.
- *There is little evidence of any significant differences in resilience, happiness or mindset as a result of socio-economic status.* Our survey suggested there is little difference between those receiving free school meals and those not receiving free school meals in these areas. This potentially contradicts some of the existing research on the impact of mindset interventions on people from lower socio-economic groups.

These survey results support the recent Children's Society report's findings that unhappiness is a problem that affects young people in the UK particularly severely, and that young women are worse affected than young men, as a result of a range of factors including body image issues.⁷ These results reinforce the need for increased focus on mental health and character capabilities. While many factors influence the happiness and resilience of an individual, and while the period between 14 and 18 years of age is one of profound change, the severe decline in happiness between those ages is a problem that needs to be addressed. Growth mindset could play a role in combatting this unhappiness and addressing the problem of lack of resilience and persistence in pupils.

This survey raises interesting questions about the relation between mindset, wellbeing and socio-economic status. More research is needed to examine the mindset of people in lower socio-economic groups, and the effect of interventions on them.

Conclusions and recommendations

While this research was a scoping project, we draw some general conclusions about the value of growth mindsets, and suggest further areas for research. These are our conclusions:

- Though a simple idea, the potential impact of growth mindset on outcomes from academic attainment to mental health is significant and demands ambitious research and further implementation.
- Despite the simplicity of the core concept, the effective implementation of growth mindset principles is difficult. They can easily be misunderstood, misapplied or reduced to motivational slogans. Unlocking the potential of growth mindset interventions requires thorough cultural change and continuing development.

We make the following recommendations:

- *More research should be undertaken to determine the particular impact of growth mindset interventions on students from socio-economically disadvantaged backgrounds, to examine interventions outside education, and to explore which interventions are the most effective.* The current evidence is very strong in many places, and weaker in others. In order to inform policy-making effectively, and address the particular needs of youth development in the UK, three research strands should be strengthened. More research into growth mindset interventions outside the education system – for example examining how interventions might have an impact for young people disengaged from the education system, in criminal rehabilitation and in deprived communities – is required. More research on the effect of growth mindset interventions on pupils from disadvantaged backgrounds should also be undertaken, given the significant attainment gap between rich and poor in the UK education system. Finally, having demonstrated the potential positive impact of growth mindset interventions, the logical next step for research in this area is to determine what kind of interventions are the most effective, and what is required for effective and consistent implementation.

- *New research methods need to be developed and applied in order to measure growth mindset where it counts – at the institutional level.* Currently, the evidence base is skewed towards the evaluation of simple, limited growth mindset interventions, like short online courses or workshops. This is largely a result of how impacts are commonly measured, through randomised controlled trials (RCTs) or evaluations in controlled conditions where potential variables are limited. Yet so much of the theory and evidence, including the case studies presented in this report, suggests that harder to measure whole organisation or whole school approaches – for example where growth mindsets are threaded through the curriculum, included in feedback systems and part of continuing professional development (CPD) – are the most effective methods of measurement, rather than limited workshops or online lessons. In order to understand the potential impact of growth mindsets, we need to develop robust new ways to measure the more complex impact on an institutional scale. Evaluation methods cannot limit educational innovation.
- *Growth mindset should be considered outside the school system.* Growth mindset could have a potentially transformative impact on various areas outside education, from social action programmes to prison reform, from community programmes for troubled young people to professional development in business and public services. Yet too little robust research has been conducted in this area. Policy-makers, third-sector practitioners and researchers should consider where outside the education system growth mindset interventions might be fruitfully applied.
- *The impact of threading growth mindset methods into initial teacher training (ITT) and CPD should be explored.* In some ITT programmes in the UK, growth mindset concepts are covered, in varying degrees of detail. Better understanding the impact of growth mindset concepts on teachers' performance, whether that knowledge is conveyed through ITT or CPD, could tell us more about the most effective forms of intervention. It could also potentially point to new ways to institute growth mindset

concepts in education at a systemic level. Evaluations should be conducted into the impact and efficacy of growth mindset training within ITT and CPD.

1 What is growth mindset?

Over the last few decades, social psychologist Carol Dweck's work on the 'mindsets' that guide people's motivations and behaviours and affect their achievements has had significant impact on developmental psychology, particularly in the field of education. Mindset is one of the most promising areas of character education, with a simple central theory and a solid body of research behind it. Dweck's work has gained increasing traction with a popular audience across a range of areas, from teachers and policy-makers to sports coaches and business leaders. This short chapter explains the key concepts that sit at the heart of mindset, lays out the key arguments for its importance, and describes the origins of the research in this area.

Ultimately I think that people must learn from the times that things don't work out for them. Those can be the best lessons of your life.

Richard Branson

Key concepts

Learned helplessness

Dweck's academic career started with the study of animal motivation at Yale in the 1960s, particularly 'learned helplessness'. Learned helplessness is where animals (or people) are conditioned to believe that a situation is inescapable or unchangeable. If previous experiences have shown them that they cannot influence their situation, they might feel unable to avoid a negative state of being. For example, where an animal is forced to endure pain repeatedly in a situation where that pain is unavoidable, they might become unwilling to avoid that pain when they in fact are able to do so.⁸ Dweck's research into this behaviour as a Yale graduate student led her to consider the

motivation of children, specifically why, when faced with failure, some children remain motivated, while some children give up.⁹

Attribution theory

Attribution is the process by which individuals explain the causes of behaviours or events. Attribution theory is critical to mindset interventions, which seek to get young people to attribute their successes to effort.¹⁰ Attribution also ties into other important concepts, such as locus of control, the extent to which individuals believe that they can control events affecting them. In 1972, one of Dweck's first experiments on educational interventions provided an early indication that behavioural interventions focused on the attribution of success to effort could have an impact on attainment.¹¹ Dweck taught a class of middle-school children who displayed 'learned helplessness' that effort, not ability, affected success, leading to an increased ability to solve maths problems.¹² Dweck's widely-cited 1975 experiment, which involved teaching children with extreme reactions to failure to attribute it to a lack of effort, laid further important ground-work.¹³

Mastery-orientated response and the helpless response

Throughout the 1970s and into the 1980s, Dweck researched children's motivation, exploring what she described as 'the helpless response' and the 'mastery-orientated response'. These two terms refer to two distinct reactions to failure, and are related to the idea of learned helplessness. The helpless response is where a person believes that once a failure occurs, the situation is outside their control. This response is characterised by lowering expectations, a feeling that their intelligence has been denigrated, reduced persistence and performance deterioration.¹⁴ The mastery-orientated response refers to the 'hardy' response to failure, whereby the individual remains focused on improving and 'achieving mastery'.¹⁵ These responses to failure are influenced by an individual's implicit theory of intelligence.

Implicit theories of intelligence

By the early 1980s, Dweck was researching social-cognitive approaches to learning and the ‘theories of intelligence’ or ‘self-theories’ that lie behind these behaviours.¹⁶ At the heart of the idea of growth mindset is the idea of ‘implicit theories of intelligence’. This is a person’s fundamental understanding of the malleability of their own intelligence and abilities, principally as it applies to themselves. Dweck argues that a person’s implicit theory of intelligence dictates their approach to challenging learning tasks – for example by influencing the kind of goals they aspire to – and ultimately impacts on their performance.¹⁷ According to Dweck, there are two main types of implicit theory of intelligence: the entity theory and the incremental theory.

The entity theory of intelligence (fixed mindset)

The entity theory of intelligence characterises a ‘fixed mindset’. A person who subscribes to the entity theory of intelligence believes that intelligence and aptitude are fixed and unchangeable. As a result, people with a fixed mindset place a large value on success, and are orientated towards ‘performance goals’ (concerned with a favourable judgement of their competence) and not ‘learning goals’ or ‘mastery goals’ (concerned with increasing competence). As a result of their view of intelligence as a limiting factor, people with a fixed mindset might avoid challenging situations, or fail quickly in the face of complex tasks. A person who subscribes to the entity theory of intelligence would agree with statements like ‘your intelligence is something basic about you that you can’t really change’.

The incremental theory of intelligence (growth mindset)

The second is the ‘incremental’ theory of intelligence that characterises a ‘growth mindset’. A person who subscribes to the incremental theory of intelligence believes that intelligence and aptitude are subject to change, and can be improved through hard work and effort. As a result, people with a growth mindset are more likely to seek out intellectual challenges, pursue learning or mastery goals, and respond more positively to challenge and complex tasks. A growth mindset can lead people

to ‘place a priority on learning and self-development, and interpret setbacks as a reflection of their effort or learning strategies’.¹⁸ A person who subscribes to the incremental theory of intelligence would agree with statements like ‘no matter who you are, you can substantially change your level of intelligence’.¹⁹

A lot of growth mindset is about praise, and how praise is utilised, and I agree with that... I talk a lot in schools and I always try and engage with children and let them know that it's not meant to be easy, and that people who are good at things have just worked terribly hard at it, and as soon as you start realising that that's the journey, it becomes rewarding.

Justin Packshaw

The malleability of intelligence

A key principle of growth mindset is that our perception of our intelligence – our assumptions about the extent to which it can be improved or not – itself impacts on our abilities or intelligence. This in turn assumes that our ability and intelligence can be changed.

It is uncontroversial to suggest that a person can become more able. There are a wide range of factors outside intelligence that can contribute to ability: persistence, ambition, grit, resilience, environment, self-belief and so on. It is more controversial to suggest that a person can change their basic level of intelligence.

The malleability of intelligence continues to be the subject of robust debate. For a long time there were strong arguments that intelligence was a purely or overwhelmingly inheritable characteristic.²⁰ However, a growing body of evidence suggests that intelligence is malleable. For example, some studies have found that IQ scores can be influenced by environmental factors, while others have suggested that IQ can be raised through critical thinking interventions.²¹ One particularly powerful argument for the malleability of intelligence is the Flynn effect, the term given for the substantial, long-term rise in IQ test scores internationally, which have taken place (at a varying pace over

time and in different countries) since the 1930s to the present day.²² The Flynn effect raises complex questions about the nature of intelligence. Some suggest that it provides strong evidence that various environmental factors, such as education, can change levels of intelligence within individuals.²³ Others argue that this reflects an increase in test-taking skills, or a mixture of skills and basic intelligence increases.²⁴

While debate continues on the precise degree to which intelligence can change, the extent to which a singular intelligence exists, and the exact significance of heritable and malleable characteristics, there is strong evidence that our cognitive abilities are malleable and that they can be improved. Furthermore, as the next chapter will demonstrate, there is strong evidence to suggest that our perception of our own intelligence as malleable can improve our academic performance, along with several other factors.

Dweck holds that intelligence is partly based on heritable characteristics, but that the ‘evidence increasingly suggests that important parts of many abilities can be acquired’.²⁵ She argues that mindsets are malleable, and can be fostered or encouraged through educational interventions and efforts to frame the attribution of success or failure in specific ways. For example, Dweck’s research suggests that certain types of praise from teachers and parents – comments such as ‘well done, you are very clever’ – can reinforce an entity mindset, causing students to view intelligence as a fixed state of being and leading students to neglect effort and to be less resilient in the face of failure. Praise for effort, on the other hand, can foster a growth mindset, more stable self-esteem and a more positive attitude towards challenges.

It is important to acknowledge that individuals are unlikely to have either a fixed or a growth mindset across every area of their lives. An individual can have differing implicit theories of intelligence about various aspects of their life, abilities or intelligence. They might have a growth mindset in one area, for example their ability to learn history, and a fixed mindset in another, for example believing that they cannot improve their mathematical abilities.

I definitely have a growth mindset in sport. I enjoyed school, but I did struggle. Maths has always scared me, even basic maths. Even now if I have to do something pretty simple, I get embarrassed... If the maths teacher had explained it through basketball, in a scoring system... then I'd be like, alright, that's interesting.

Ade Adepitan

Mindsets are not entirely binary. Individuals can express mindsets with varying degrees of intensity. There are therefore limitations to the value of generic tests of mindset.²⁶ However, research from 2013 suggests that in the US, when people are assessed for their implicit theory of intelligence, approximately 40 per cent ascribe to the entity theory, 40 per cent ascribe to the incremental theory, and 20 per cent are undecided, so they fall somewhere in between.²⁷ There has not been research into the specific percentage of the UK population that has growth or fixed mindsets.

The misapplication of growth mindset

While the growing popularity of growth mindsets has led to its application across many institutions within and outside education, it has also led to its misapplication. Common misunderstandings include the idea that children should only be praised, that all praise is bad, or that fixed mindset students will never achieve. A clear understanding of the basic principles is critical to a successful growth mindset programme.

It turns out we're seeing a lot of what I'm calling false growth mindset. That's where the growth mindset has become in many circles 'the right way to think', and so many educators just say, 'oh, I have it of course', but might not understand it. They might, for example, believe that some kids can learn while some can't, and that some can't learn because they have fixed mindsets.

Carol Dweck

This chapter has explored the key concepts behind growth mindset. The next chapter examines the evidence base on the importance of mindset, its potential impact on various outcomes, the effectiveness of interventions and the limitations of the existing data.

2 The evidence for growth mindsets

In this chapter we summarise the latest and most significant evidence concerning mindset. We present the evidence on the correlation between mindset and a range of outcomes, whether or not it can be taught, and which methods are most effective for teaching it. We also present the results of a nationally representative survey of 14–18-year-olds in the UK, which provide additional evidence and UK context for the evidence in this chapter.

Much of this research comes from the US, while the body of research from the UK on growth mindsets is less developed. Most of this evidence relates to mindset in the context of education, particularly secondary and university education. However, there is a growing volume of evidence to support the applicability of implicit theories of intelligence in areas outside education.

There is increasingly strong evidence supporting the importance of mindset to character development and wellbeing, and some evidence to support its impact on workplace skills, career choices and a number of other areas. There are some gaps in the evidence base, and the evidence on the most effective interventions through which to foster growth mindsets is unclear.

Our review of the key studies, journal articles, reports and evaluations suggests the following:

- The evidence base for implicit theories of intelligence is extensive, and there is strong evidence supporting the significance of mindset in the context of academic attainment.
- There is also strong evidence that mindset is related to the development of many character skills, such as resilience and grit, self-regulation and persistence, and correlated with wellbeing and mental health.

- There is evidence that mindset can be correlated with diverse outcomes for teachers, not just for young people.
- There is evidence to support a correlation between mindset and other areas, including workplace skills and career choices.
- There is strong evidence that mindset is malleable, and that it can be ‘taught’ through various interventions. Such interventions have been found to have a particularly profound impact on ethnic minority pupils, and on women in STEM subjects. There is some evidence that growth mindset interventions can have a particular effect on socio-economically disadvantaged pupils.
- Many growth mindset interventions exploiting a variety of methods have been evaluated, with largely positive results. However, the evidence on which type of intervention is the most effective is unclear. Short, pupil-focused development sessions have had positive effects, while the evidence on teacher-focused mindset interventions is mixed.
- There are some gaps in the current evidence base. These include a relative lack of research in the UK, of detailed research into the effect of growth mindset interventions on socio-economically disadvantaged young people, and of detailed research outside the classroom. There is also an unhelpful, overwhelming focus on the assessment of short, limited interventions as opposed to whole school or whole institution interventions.

Having studied the evidence presented in this chapter, we conclude that growth mindset could potentially have an important impact on not just education, but also a wide range of areas related to the development of young people. However, further research in certain areas is required.

Mindset and academic performance

There is substantive evidence suggesting that mindset is strongly correlated with academic attainment, across different ages.²⁸

Most of this research focuses on the relationship between mindset and academic attainment. A 2007 longitudinal study which followed 373 students over two years between the ages of

12–13 and 13–14 found that on average the grades of students with growth mindsets increased, while those of students with fixed mindsets decreased. The attainment gap between these two groups grew over the period of study.²⁹

Correlation between mindset and attainment can be found across age ranges. A 2010 study found that particularly in STEM subjects, the mindsets of school age students predicted their achievement.³⁰ A 2003 study examined college students undertaking pre-med organic chemistry, finding that growth orientation, as opposed to a fixed ability orientation, predicted higher final grades. Moreover, students with initially poor grades were more likely to recover their performance if they had a growth orientation.³¹

Forthcoming research by Dweck and her colleagues promises to present the most compelling evidence on the correlation between mindset and academic attainment yet. The Chilean government administers annual surveys and standardised tests to students. The 2012 survey measured students' beliefs about mindset – whether or not they subscribed to entity or incremental theories of intelligence. In a large-scale study based on survey data from 168,000 students – three-quarters of all the 10th grade students in public schools in Chile – Dweck and her colleagues will argue that mindset is as important a predictor of academic achievement as socio-economic background. Moreover, by controlling for self-perception and expectations among students, the study will also present evidence that growth mindset leads to higher attainment, rather than the reverse – doing well in school leading to growth mindset development.³²

We have conducted research into almost all schools in Chile, with a final sample of 168,000 students... In virtually all the schools in the sample – that's more than 2,000 – the very poorest students at the lowest decile of wealth who had growth mindsets were performing at the level of much wealthier students who had a fixed mindset in the 80th percentile of wealth.

Carol Dweck

Growth mindset interventions

There is strong evidence that mindset is malleable, and that growth mindsets can be encouraged through interventions.

Assessments of the effect of mindset-based classes and workshops suggest that even short mindset interventions can produce profound effects on academic outcomes.³³ In a 1998 paper using fifth grade pupils as a case study, Dweck and Mueller demonstrated that praising a child's intelligence could have negative consequences for student motivation and performance, whereas praising their effort had a positive impact on these measures.³⁴

Research by Dweck and five other academics on a large scale in 2015 showed that growth mindset interventions could have a profound effect on grade attainment. In 13 geographically diverse high-schools, 1,594 students were the subject of short, direct growth mindset interventions. The intervention raised the number of students attaining satisfactory marks in core courses by an average of 6.4 per cent.³⁵

We all have some wins, we all have some losses. It's a clichéd point, but the trick is to celebrate the wins and learn from the losses. The thing about failure is that it's temporary and imagined, it's not really real, it's what you choose to tell yourself in your head. The great thing is you can choose to tell yourself something different. Tell yourself. 'Okay, that didn't work out, why not? Now I understand, bank that learning and move on.'

Richard Reed

Stereotype threat

Growth mindset interventions can have a particularly profound effect on groups that are traditionally disadvantaged within education or some parts of it, such as women studying STEM subjects and people from ethnic minority groups. There is also some evidence that such interventions can disproportionately benefit socio-economically deprived students. This is at least partly because mindset interventions can counteract stereotype threat.

Stereotype threat is a situational problem, whereby individuals feel at risk of conforming to negative stereotypes

about their socio-economic, ethnic, religious or gender group. There is evidence to suggest that stereotype threat can have an important negative effect on the educational attainment of members of certain groups who are subject to stereotyping. For example, there can be an assumption that certain ethnic minority groups will perform less well than others academically because of their race, or that women studying STEM subjects will do less well than men because women are not good at technical or scientific subjects.³⁶

There is evidence to suggest that risk of stereotype threat is related to an individual's implicit theory of intelligence in important ways. Research has shown that those who have fixed mindsets are more likely than others to make stereotype-based judgements,³⁷ and that individuals are likely to process the information that helps them make predictive judgements about other people selectively, according to whether they have a fixed or a growth mindset.³⁸

Mindset and susceptibility to stereotype threat are interlinked. A 2007 research paper by Dweck, Good and Rattan, which studied several hundred female university calculus students, suggested that those with growth mindsets were less susceptible to negative stereotypes about female mathematicians.³⁹ In a 2006 experiment, female college students were given two different explanations for the gender difference in maths attainment before undertaking a test. One group was told that the difference was down to genetics. The other was told that the gap was explained by different experiences. Females told that the difference was genetic performed more poorly than those who were told it was due to experiences.⁴⁰

Growth mindset interventions can have a disproportionately positive effect on females. A 2003 study found that among students with a fixed mindset, males outperformed females, while among those with growth mindsets, females slightly outperformed males.⁴¹ Growth mindset interventions were also found to have a more positive effect on female students' grades than male students' grades in a separate 2003 study.⁴²

Growth mindset interventions can also have a disproportionately positive effect on ethnic minority students.⁴³ A 2002

evaluation found the same effect: growth mindset interventions reduced the threat of stereotype threat among African-American students and increased grade attainment.⁴⁴ A 2013 assessment of a growth mindset intervention, in which some high school students were delivered mindset workshops and those in a control group were not, found that African-American students experienced a more substantial increase in performance as a result of the intervention than other students.⁴⁵

If you are someone who is growing up in Chelsea, your mindset will be totally different to someone growing up in Myatt's Field Estate in Brixton. Environment has a massive impact. With young people, it's always about their mindset, about their values. That's what I needed to get to. I was non-judgmental.

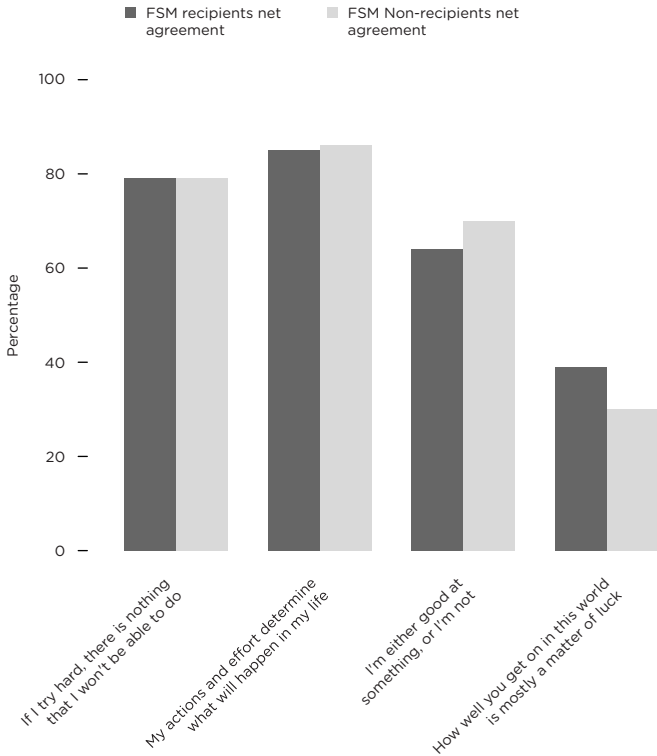
Pastor Mimi

There is some evidence that interventions can have a particularly significant impact on young people from lower socio-economic backgrounds. A 2003 study suggested that lower income students were especially responsive to growth mindset interventions.⁴⁶ However, our survey of 14–18-year-olds did not suggest there was any significant difference in the mindsets of young people who were received or had received free school meals, and those who did not.

Both groups were equally likely to agree with the statement 'If I try hard, there is nothing that I won't be able to do', and almost equally likely to agree with the statement 'My actions and effort determine what will happen in my life'. Those who had not received free school meals were more likely to agree with the statement, 'I'm either good at something, or I'm not', but students who had received or were receiving free school meals were more likely to agree that 'how well you get on in this world is mostly a matter of luck' (figure 1).

Insofar as general mindset can be determined through a survey, this suggests that there is no significant difference between young people from poorer and wealthier backgrounds, contradicting the 2003 study cited above.⁴⁷ While it is clear that mindset interventions can have a particularly significant impact

Figure 1 **Comparison of responses of 14-18-year-olds to four statements, by whether on free school meals**



Source: Demos survey

on ethnic minority and female students, more detailed research into the effect of growth mindset interventions on those from lower socio-economic groups is required.

Character and wellbeing

There is a growing body of evidence to suggest that mindset is correlated with character attributes, and that growth mindset interventions are associated with positive character development across a range of character traits.

People with a growth mindset tend to be more resilient than those with fixed mindsets in the face of challenges and setbacks, according to a 2012 study into mindset interventions.⁴⁸ This is to be expected, given that constructive reactions to failure are a core characteristic of growth mindset individuals. Experimental research by Dweck and Mueller in 1998 supports this idea; they found that fifth graders who were praised for their intelligence displayed less persistence, less enjoyment and worse performance than those praised for effort.⁴⁹

I'm a very big believer in the whole growth mindset philosophy. A lot of it is about how you start your life, and the ingredients that fuel your character. Even though I wasn't particularly academic, I was strong enough to say 'I'll just work harder' or 'I'll find a way'.

Justin Packshaw

According to a 2014 study based on self-reported surveys, mindset is correlated with conscientiousness, self-control and grit, and two studies from 2010 and 2012 presented evidence that implicit theories about willpower – whether someone believes that willpower is a finite resource that is depleted through use or not – influence an individual's self-control and self-regulation across a number of measures.⁵⁰

As growth mindset is positively correlated with character traits such as resilience and grit, it is not surprising that it is also correlated with positive mental health outcomes. A 2014 research study by Dweck and a number of other academics, which presented the results of three studies, found that in school age children, growth mindsets predicted not only better academic performance, but better health outcomes and lower levels of stress.⁵¹

Moreover, 2012 research found that growth mindset interventions can have a significant positive effect in reducing

aggression in aggressive children; this research was supported by a 2013 longitudinal study with similar outcomes.⁵²

Looking at everyone who's changed their lives around is inspiring. It's about believing in themselves that they can leave that lifestyle behind. You have to start growing up, you have to start making decisions. Even if you make mistakes, you learn and you grow.

Pastor Mimi

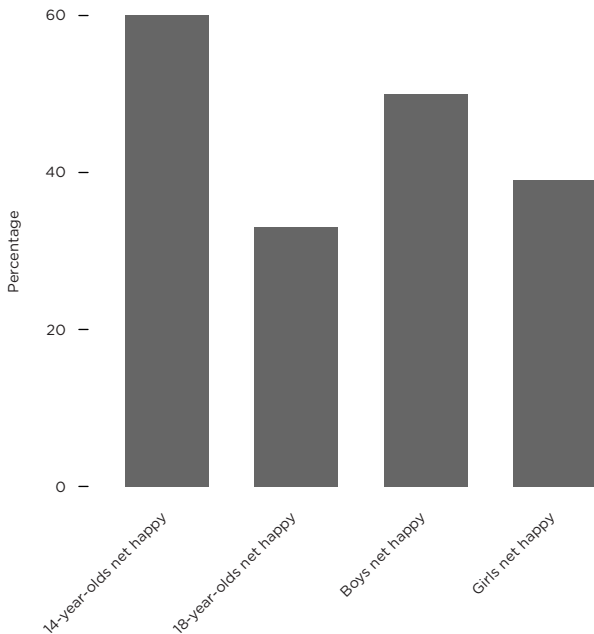
This growing body of evidence supporting the correlation between growth mindset and positive mental wellbeing as well as character development particularly reinforces the case for growth mindset interventions in the UK, because of both the growing acknowledgement of the importance of character education, and the levels of unhappiness and mental health problems among young people in the UK.⁵³

The Children's Society's *Good Childhood Report 2015* found that young people's wellbeing decreases across various measures between the ages of 10 and 17. For example, when surveying 8,000 children the researchers found that the mean happiness value (out of ten) for 10-year-olds was 8, while for 17-year-olds it was 7.1, and the mean score for feeling life is worthwhile also drops from 8.2 at age 10 to 7.2 at age 17. They found that girls exhibited lower wellbeing than boys, and that in a study of children in 15 countries English children ranked 14th for life satisfaction, 15th for self-confidence, and 11th for recent feelings of happiness.⁵⁴

The findings that girls are less happy than boys, and that average happiness decreases every year for school age children, reinforces the findings from our survey, which found that final year students are almost half as likely as 14-year-olds to have been feeling happy yesterday, and female students are less likely to report feeling happy (figure 2).

Older pupils (18-year-olds) are also three times more likely than younger ones (14-year-olds) to think their school is preparing them to succeed only in exams, rather than in life, and are more likely to feel like a failure if they don't succeed at a task (figure 3).

Figure 2 **The proportion of 14-year-old and 18-year-old children and boys and girls who felt happy yesterday**



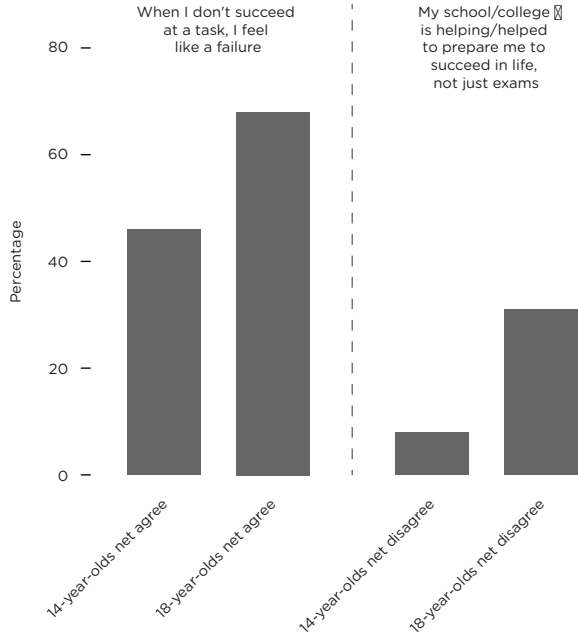
Source: Demos survey

These findings suggest that young people become less happy as their education progresses, that resilience might decrease over the same period, and that there are notable differences in happiness and resilience between girls and boys.

Impact of mindset on teachers

There is evidence that mindset can have a significant impact on the performance not just of students, but of teachers. In a 2007 experimental study, adult participants acted as teachers to

Figure 3 **The proportion of pupils who agree and disagree with statements about feeling a failure if they don't succeed at a task and whether school or college is helping them to succeed in life**



Source: Demos survey

provide feedback on students' exams. One group was told that maths ability is largely fixed; the other group was told it was predominately acquirable. The participants who were told that maths ability was fixed subsequently gave students less encouragement, increased their gender bias and gave girls less effective feedback than boys.⁵⁵

The findings of this study support the idea that growth mindset cannot be pursued merely through interventions

targeted at individuals; to unlock its potential, broader cultural and environmental changes are required. For example, a number of the component ideas of growth mindset – for example the idea of framing problem solving as ‘learning challenges’ – contrast strongly with elements of the existing education system, which – focused overwhelmingly on regular formal assessment – can often present problem solving as an objective calculation of fixed ability.⁵⁶

Moreover, teachers’ attitudes and mindsets can be critical to the success or failure of an intervention. A 2014 quasi-experimental study by Shumow and Schmidt found that teachers’ attitudes towards teaching strategies and growth mindsets were a significant component in the successful delivery of an intervention.⁵⁷

Educating parents, educating schools about the importance of it, of making people realise that they are not fixed in any set criteria... that everything is out there, that everything is possible: if you can instil just that in kids, then that is amazing.

Justin Packshaw

Workplace skills and culture

While research in this area is in development, there is some evidence that mindset is related to a diverse range of factors in employment, from work-related skills to business culture.

For example, a recent study based on surveys of employees at seven Fortune 1000 companies suggests that employees frequently share a consensus on whether or not their company is a growth or a fixed mindset organisation. This research suggests that employees in a growth mindset company are 47 per cent more likely than those who are not in a growth mindset company to say their colleagues are trustworthy, 34 per cent more likely to feel strong ownership of and commitment to the company, 65 per cent more likely to say that the company supports risk-taking, and 49 per cent more likely to say that the company fosters innovation.⁵⁸ This study is a rare example of the study of mindset at an institutional level.

Mindset can also be correlated with specific skills among individual workers. For example, as Dweck summarises in her book *Mindset*, there is evidence to suggest that growth mindsets are associated with more productive and capable management styles.⁵⁹ A 2007 study, which presented evidence from a number of experimental and longitudinal studies, found that growth mindset was associated with better negotiating capabilities: across several negotiation measures, negotiators with fixed mindsets were consistently outperformed by negotiators with growth mindsets.⁶⁰

I think it's very important now. I think we need people to take big bold, brave decisions; occasionally they will fail, and occasionally they will succeed. If somebody does slip up, they needn't be frightened of giving it a go, of trying things. I think it's important that that applies in companies.

Richard Branson

Career and education choices

There is some evidence that mindset can influence the choices people make in education and employment, as a result of the role it can play in mitigating negative stereotypes. A 2007 study suggested that the perception of negative stereotypes about women in maths reduced the likelihood of those women pursuing mathematics in the future, but that women with growth mindsets were less likely to be affected by negative stereotypes.⁶¹ A 1999 study of 168 Hong Kong freshmen found that those with fixed mindsets were less likely to attribute poor performance in exams to effort, and were subsequently less likely to take remedial courses when faced with poor grades.⁶²

What I loved about sport is that it gives you clear, statistical evidence of improvement, every day. You can be a better person each day through sport. If I go on the racing track and do four 400 metre sprints, the next day I can do five. Every day, I had a clear improvement. I had a dream, a passion to become an international wheelchair basketball player. I think I was cut five times from the national Paralympic squad... What I've learned is just work

on improving, day to day. People who haven't built up that resilience struggle to deal with being judged.

Ade Adepitan

Which interventions are most effective?

There is clear evidence that growth mindset is correlated with assorted positive outcomes, from grade attainment to wellbeing. There is also strong evidence that mindset, like other important non-academic skills, can be developed through interventions. However, the evidence is less clear about which intervention methods are the most effective.

There is evidence that even simple interventions targeted directly at students have a positive impact. In fact, simple interventions directed at young people are supported by the most robust evidence. Two studies, from 2003 and 2007, created interventions which taught 7th graders with declining or particularly low grades a growth mindset.⁶³ The 2007 study used a series of workshops, and the 2003 study used mentoring sessions delivered by college students. In the control groups in both studies, students received comparable support, for example on useful study skills. The control group's grades continued to decline in both cases, while the grades of those students subject to growth mindset interventions increased. In the 2003 study, girls showed greater gains than boys.⁶⁴ Research by Dweck and a number of other academics in 2015 found that brief online interventions – two online course modules of 45 minutes each – raised academic performance in their large and diverse sample of American students, particularly among under-performing students.⁶⁵ This finding reinforced earlier research into the efficacy of online growth mindset interventions conducted by Dweck and her colleagues.⁶⁶

This research suggests that whether delivered online, through workshops or through mentoring, simple, direct growth mindset interventions can have a positive impact on grades. The effectiveness of these types of intervention has been noted by the US Department of Education. In its 2013 research report *Promoting Grit, Tenacity and Perseverance*, the Department of

Education highlighted the ‘growing research demonstrating that brief interventions (e.g. 2 to 10 hours) can significantly impact students’ mindsets and learning strategies, and, in turn, academic performance’.⁶⁷

A recent evaluation of two types of growth mindset interventions in the UK presented more mixed results. The evaluation, conducted by the National Institution of Economic and Social Research and the Education Endowment Foundation, constitutes the most robust assessment of growth mindset interventions yet conducted in the UK. The study examined the impact of interventions directed at teachers (concerning teaching technique) and those directed at students, and involved randomised control trials in 36 schools.⁶⁸ The study found that professional development interventions for teachers had no effect on the maths and English grades of their pupils. However, teaching students growth mindsets directly had a small effect on their grades: ‘Pupils who received the growth mindset workshops made an average of two additional months’ progress in English and maths. These findings were not statistically significant, which means that we cannot be confident that they did not occur by chance. However, the finding for English was close to statistical significance, and this suggests evidence of promise.’⁶⁹

The research report suggested that there were a number of potential explanations for the limited impact of the pupil-focused intervention, including pre-exposure of pupils to some aspects of growth mindset techniques lessening the effect, and the fact that the intervention was not sustained or intense enough.⁷⁰ Previous Demos research, for example *Character Nation* (2015), has found that a whole school or whole organisation approach to character education is required to unlock its full value.⁷¹ Many of the schools and colleges which were awarded funding in early 2015 as part of the Department of Education’s Character Awards were awarded as a result of their whole school approaches to character education, and School 21, a case study example for this report, achieves its impact through a whole school approach.⁷²

There are several other reasons to focus on whole school approaches when examining the effectiveness of mindset

interventions. For example, a short growth mindset intervention undertaken in an environment that otherwise fosters a fixed mindset approach to education is unlikely to have lasting effects. A number of academics, including David Dockterman and Lisa Blackwell, have highlighted the importance of context and broader institutional or organisational context.⁷³

Yet the current evidence base is focused overwhelmingly on assessing the impact of short, limited interventions. This is partly because it is the easiest type of robust research to conduct; limiting variables is the most effective way to measure effects accurately. However, the lack of assessment of whole school or whole organisation approaches to growth mindset means that where it really counts – at the institutional level – there is a lack of evidence on the effectiveness of interventions.

The limitations of the existing evidence

While in many areas the research on mindset and mindset interventions is strong, there are a number of limitations in the existing evidence base. One of the most significant is the lack of evaluations of whole school or whole institution interventions, discussed at length above. If this is to be corrected, then researchers need to explore new ways of conducting research into and evaluating more sophisticated and complex interventions. It is not acceptable that our evaluative processes should limit our development of more effective interventions.

There is also a relative lack of research into the effect of growth mindset interventions on pupils with complex needs and from disadvantaged backgrounds, particularly those from lower socio-economic backgrounds. One of the most valuable aspects of growth mindset is its apparent ability to correct imbalances in the education system by disproportionately positively affecting young people from ethnic minority groups, or women studying STEM subjects. Clearer evidence on the effect of growth mindset interventions on young people from different socio-economic groups would make a stronger case for interventions in the UK.

Several studies have found that growth mindset interventions can have a positive impact, whether they are online,

mentoring or workshop based. The next step in the research on interventions should be to determine which kinds of intervention are the most effective, and what is required for effective and consistent implementation. More research examining and comparing intervention methods would help policy-makers and education specialists make more effective decisions on the implementation of growth mindset concepts in schools and colleges, and among the wider community.

Another area for further research is the impact of growth mindset outside education. As the evidence supporting the impact of interventions in classrooms becomes more robust, the arguments for examining how they could be undertaken outside the classroom – in community programmes, targeted interventions for those with complex needs, or even in the workplace – grow. There is no reason to believe that growth mindset interventions should be school-bound. In some cases, those who could benefit most could be more effectively accessed outside the education system.

A further potential limitation of the existing data, highlighted in one 2012 literature review of non-cognitive skills teaching in schools, is that many of the most recent reviews of psycho-social intervention research in education have been written by the same people who conducted the studies.⁷⁴ Similarly, while there is a large volume of evidence supporting the importance of growth mindsets, the majority of these studies have been written by a relatively small group of academics; a broader evidence base, including more research from academics without a stake in growth mindset interventions, would strengthen the case for the wider application of growth mindset principles.

This chapter has shown that there is strong evidence suggesting that having a growth mindset is an important predictor of achievement and positive outcomes across a diverse range of measures, including character capabilities and wellbeing. Moreover, growth mindsets can be developed through various interventions. The potential for growth mindset interventions to have a profound positive impact on education and in other areas is clear.

3 Growth mindset case studies

This chapter examines a number of case studies of schools, businesses and third-sector organisations which have implemented growth mindset concepts in the work that they do, either implicitly or explicitly. Having explained the key concepts behind mindset, and having examined in detail the evidence supporting the efficacy of growth mindset interventions, in this chapter we examine some real-world examples of the implementation of growth mindset concepts in schools and the education system generally, and in community organisations. Each case study reinforces an important point: that the potential impact of growth mindset ideas is much greater if they are applied through a whole school or organisation approach, focused on transforming a young person's environment, than if they are applied as a simple intervention.

As part of our research, we undertook case studies of three organisations that implement a growth mindset approach:

- Reclaim, a youth leadership charity
- an intervention run by Camden Council, which works with the parents of disadvantaged young people
- School 21, a free school based on growth mindset principles

Through these case studies, this chapter examines how mindset interventions can work in practice, and explores some of the key questions drawn out in this report:

- How might growth mindset interventions help pupils from deprived backgrounds?
- What does it look like when an organisation adopts a holistic growth mindset approach?
- What can growth mindset methods add to ITT and CPD for teachers?

Growth mindset interventions for pupils from deprived backgrounds

One of the most valuable aspects of growth mindset is the impact it has on traditionally disadvantaged groups in education, such as African Americans, or women studying STEM subjects. As the previous chapter highlighted, the evidence on the impact of growth mindset interventions on those from lower socio-economic backgrounds is developing but promising. Reclaim, the youth leadership charity, presents one practical example of how growth mindset development can have a particularly profound impact on young people from disadvantaged backgrounds.

Reclaim was founded in Manchester in 2007 by Ruth Ibegbuna, a former teacher. The goal of the Reclaim project is to identify young people from deprived communities with leadership potential, and to support them in developing self-confidence and leadership skills over the course of a two-year programme. To date, Reclaim has worked with over 650 young people who come onto the programme when they are 13 and complete it just before they turn 16.

Ruth told us that many of the socio-economically disadvantaged young people the charity works with come to Reclaim with a fixed mindset, often shaped by their early experiences in school and low expectations of themselves. The first year of the Reclaim project is spent trying to shift the young people into more of a growth mindset by building up their self-belief and self-confidence through exercises that enable them to see how they can achieve objectives they did not regard as possible at the beginning of the programme, through their own efforts. The second year is designed to develop leadership through social action. Reclaim is yet to be evaluated, but presents an example of how growth mindset principles can be implemented as part of a wider, long-term strategy: establishing the right ‘mindset context’ in the first year to facilitate the impact of the wider programme’s content in the second.

Young people need to be encouraged more. I know I have to have a growth mindset, and if I have a growth mindset, then the students I work with, and my team members, will also have a growth mindset.

City Year UK corp member

The Camden intervention run by Martin Cresswell offers another example of how growth mindset interventions can have a particular impact on young people from deprived backgrounds. This explicit growth mindset intervention designed to help young people from poorer backgrounds who are disengaged with their education is run by Camden Council, and is targeted not at the young people themselves but at their parents.

The London Borough of Camden has large disparities in income, with wealthy neighbourhoods like Primrose Hill and Highgate, and more deprived areas like St Pancras and Somers Town, and Kilburn. Despite increasing attainment levels overall in the borough, there is a stubborn and large gap in attainment among white working class pupils – which is also reflected nationally. The Camden Education Commission final report from 2011 states that 60 per cent of young people in Camden achieved five A*–C grades at GCSE compared with just 31 per cent of young people from white working class backgrounds in Camden that year.⁷⁵ White British students eligible for free school meals are also one of the groups with the highest levels of school absence.⁷⁶

We have also conducted research with parents. Many parents say they hold to growth mindsets, but if they react negatively to or become anxious because of their children's mistakes, they can foster a fixed mindset in their children. It's when the parents treat the mistakes as exciting and interesting learning opportunities those kids are developing growth mindsets.

Carol Dweck

In order to close this socio-economic attainment gap, officers from Camden Council with responsibility for young people decided to trial a programme aimed at engaging parents in their children's learning. The programme included a mix of approaches including workshops run by Cresswell on the concept of growth mindset.

Cresswell was drawn to the idea of growth mindsets following his experience working in a special school for children excluded from mainstream schools.

What used to frustrate me was the speed with which they gave up as soon as they were presented with a challenge, and that could be an academic challenge or a physical challenge. They'd say 'oh, I'm not going to do it' and they'd come up with a reason for not doing it.

Martin Cresswell

In many of the families that took part in the programme, the parents themselves had poor experiences of school, and felt that they could not properly engage in their children's learning. The growth mindset workshops sought to give parents advice about how to talk to their children about school and learning, and how to give feedback and praise the effort that they put in. The focus on language and feedback advocated by the mindset approach was something that Martin felt was very important to convey in these workshops. But the workshops also focused on encouraging the parents to consider going back to school and getting qualifications, which many of them have gone on to do. We interviewed two mothers who have taken part in the programme, Rose and Louise, who noted the benefits of the programme in helping them focus on the type of language they use with their children.

It started up an opportunity to talk with my kids, which I hadn't done properly, in a way that was helpful to my children at the time. I kind of barked orders at them... there wasn't a lot of dialogue going on. [The programme] opened up these opportunities for dialogue, which was amazing.

Rose

But even more important was the encouragement that the programme gave to the mothers to set positive examples for their children, to embody and model the growth mindset belief. Louise reflected, 'It's given me the courage to develop who I am and that's what I want to show to my son, that I can actually achieve something.' Similarly, Rose felt that the programme showed her that 'my role in my family is so important and actually if I can empower myself then that's the best message to give out to my kids... so I started doing courses'.

Whether the programme will start leading to measurable improvements over the years remains to be seen. But it is clear from speaking to them that the parents who have taken part in the programme feel that they have progressed a long way, and they are confident and optimistic about the future and what they can achieve in a way that they previously were not.

The Camden intervention demonstrates the importance of the wider mindset culture in which a young person develops, and is an example of an intervention that indirectly targets young people through broader changes in their environment, ultimately benefiting both the parents and their children.

Creating a growth mindset institution

As the previous chapter described, much of the existing growth mindset evidence base is focused on simple, short interventions. However, there are a number of examples of schools and colleges that have instituted whole school approaches in practice.

The Knowledge is Power Program (KIPP) is the largest network of charter schools in the US. KIPP schools are concentrated in poorer areas, with the vast majority of students eligible for meal subsidy programmes, yet they achieve very high standards of attainment. Students are accepted regardless of previous conduct or academic record, through a lottery system. Before students start, a meeting is arranged between each student, their primary carers and a teacher from the school, to discuss expectations and learning goals, and a KIPP contract is signed, to underscore the obligation of all parties to help the student succeed.

KIPP schools have a clear character education focus, based on the development of seven character traits: zest, grit, self-control, optimism, gratitude, social intelligence and curiosity. Character education is woven through the curriculum, and students track improvements in their character through a 'character report card', which encourages both an appreciation of the importance of non-academic development, and an understanding that these traits can be improved through effort, with students owning responsibility for that change.⁷⁷

Throughout this programme, the development of growth mindset is a clear goal, and explicit growth mindsets training is regularly taught in KIPP schools.

To support a growth mindset in young people, you need to create an environment where everybody is not afraid of failure, where they are not afraid of making mistakes. You need to deal with failure, and you need to deal with setbacks in order to move forward.

Ade Adepitan

There are a number of examples of schools and colleges in the UK which have also developed whole school growth mindset approaches. School 21 is one such school, and a winner of the Department of Education's 2015 Character Awards. The aim of School 21, as Oli de Botton, deputy head teacher of School 21 told us, is to develop an approach to education that is fit for the twenty-first century.

[School 21] likes to be a growth mindset school... If you believe that the purpose of school is to create beautiful works, then what does it take to create beautiful work? The first thing it takes is drafting and redrafting until the work is beautiful... So what we're looking for is for children to respond to the feedback of their teachers to seeing the things they're not getting right, to spur them on to do even better, which is crucial for growth mindset.

Oli de Botton

School 21 focuses on 'real-world learning' with an emphasis on 'creating beautiful work through enquiry questions, critique, multiple drafts and exhibitions'. The student feedback and redrafting process is designed to foster a growth mindset approach, which teachers explicitly encourage. In year 8, students undertake a module on growth mindsets, designed to provide a solid foundation for future learning. Leah, a teacher at School 21, described how growth mindset ideas are implicitly incorporated in classrooms through the language that she used and by creating an atmosphere where students – and teachers – were open to admitting their mistakes, reflecting on them and seeing them as learning opportunities. According to

Leah, ‘that meta-cognitive aspect of teaching encourages students to reflect back on what they’ve done right, and where they can improve’. Teachers are also encouraged to approach their teaching through a growth mindset approach, applying lessons learned from one project-based learning effort to future projects.

We always emphasis how much work someone has put into something, so we think about the praise people use for certain things. I’d never say to a child, ‘My goodness, you are such an amazing mathematician’, because that implies that it’s a natural thing that they haven’t worked hard to achieve. So we’d say ‘Wow, you’ve put a lot of effort into that.’

Teacher, School 21

Better understanding exactly how broader, whole school approaches like that practised at School 21 work could open the door to the more effective, substantial mindset interventions. Indeed, mindset concepts need not be confined to a whole school approach, let alone a limited intervention in a single classroom. In the US, some states are reforming their education policy to implement the idea of growth mindsets on a system-wide level. A 2014 pilot scheme run in seven school districts in California – involving nearly 1 million students – has sought to develop a new school evaluation system, called the School Quality Improvement Index, to replace the current system, which focuses solely on the results of standardised tests.

This project is being managed by a collaboration of the school districts called the California Office to Reform Education (CORE) and their not-for profit partners. The new systems that CORE is working to develop include measures of a school’s culture, suspension and expulsion rates, as well as non-academic outcomes: motivation, self-management, empathy and growth mindset development. In an attempt to tackle the problem of quantifying growth in non-academic skills, 20 per cent of a school’s performance score under the new School Quality Improvement Index will be based on measures on social and emotional outcomes, including expulsion rates, absenteeism and non-academic skills.⁷⁸

When a student makes a mistake, or they do something wrong, we'll think about the language we use with them. We'll say 'how did you make a mistake?', 'what can we learn from that mistake?' We'll encourage them to go back and rethink the process, redraft it and improve it.

Teacher, School 21

Introducing growth mindset methods into teacher training

Changes to the curriculum or structure of a school are not the only way to give a more thorough and long-term grounding to growth mindset principles. Including growth mindset methods in teacher training could go some way towards ensuring that the wider school system is conducive to growth mindsets. In some ITT courses, growth mindset approaches are already explored, but in others they are not, and often mindset is covered in little detail. Putting growth mindset at the heart of ITT, and supporting its development through CPD, could spread its impact across the education system. Ruth from Reclaim believes that reform of teacher training is essential, going as far as to say that a growth mindset should be a requirement for becoming a teacher.

The training teachers receive is very bad – almost all of it is on the job. But even before the training – at the initial interview with people who want to be teachers, we need to ensure that they're the type of person with a growth mindset and will focus on supporting and nurturing all students.

Ruth Ibegbuna

School 21's approach to training and support for teachers is informed by growth mindset approaches. Because it operates differently from a normal school, Oli De Botton argues, teachers there have to adapt a growth mindset.

We're asking a lot of our teachers. We're asking them to be product designers, to be coaches, to be guardians of students' wellbeing; we've asked them to be teachers of oracy and teaching – and these are completely new roles. So we're saying, 'Try these things, receive coaching and learn from not getting it right.'

Oli De Botton

CPD in School 21 is organised and run by the staff, and efforts are made to tailor CPD to the learning requirements of individual teachers. This encourages a reflective process, allowing teachers to consider how their teaching efforts could be improved, and what action they might take to improve them. Considering the possibility of making growth mindset principles a larger part of ITT and CPD, and evaluating the impact of growth-mindset-based ITT and CPD, could increase the long-term and sustained impact of growth mindset approaches.

In all the case studies in this chapter, growth mindset concepts have been applied in innovative, exciting ways, which stretch beyond a simple seminar, assembly or poster. Considering the strength of the evidence base, policy-makers and education experts should be considering ways of applying mindset ideas to the development of young people which are as ambitious or more ambitious than these examples, not less.

Conclusion and recommendations

This scoping report, written to complement our growth mindset video package (demos.co.uk/project/mind-over-matter/), has brought together a review of the existing evidence, case studies, interviews and survey materials to explain the key concepts behind growth mindset. It has explored the evidence for the efficacy of mindset interventions, considered what the application of this approach might look like in practice, and examined what areas of research might be the most fruitful for future development.

This report finds that mindset concepts and interventions could play an important role in the development of our young people, and could potentially have a positive impact in a range of key areas, from academic attainment, to character capabilities and wellbeing. However, in order to fulfil the real potential of mindset, further research is required in a number of areas, and a new, more ambitious approach is required for the evaluation of mindset interventions.

The evidence supporting the importance of mindset as an indicator of academic performance is strong, as is the evidence that mindset is important across different outcomes for students and teachers. As important, particularly in the context of current developments in education policy and the poor mental health of young people in the UK, is the evidence suggesting that growth mindset is positively correlated with character capabilities and wellbeing. While the evidence outside the field of education is not well established, there is evidence suggesting that growth mindsets are important in many areas, including workplace skills and career choices.

What is more, mindsets are malleable, and can be ‘taught’ through various interventions, which can have a particularly notable impact on ethnic minority pupils, and on women in

STEM subjects. More research is required to determine the precise impact of growth mindset interventions on young people from socio-economically disadvantaged backgrounds, but there are reasons to believe that they might play a role in reducing attainment gaps between richer and poorer students.

Though the concept of growth mindset is very simple, its effective implementation is more complex, and its potential impact if applied correctly is profound. This report finds that growth mindset interventions might – if exploited to their full – have a significant impact on the development of young people. The evidence suggests that even short interventions, delivered through workshops, mentoring or even online courses, can have a positive impact on attainment and other outcomes. There is less evidence on the impact of whole school or whole organisation mindset interventions, partly because of the way we evaluate interventions: overwhelmingly through evaluations or RCTs in controlled conditions, an evaluative homogeneity, which inclines us to focus only on simple changes. It is understandable why this is the case – limited interventions facilitate assessment, as they reduce the number of variables. Yet our existing knowledge of character education interventions, and the case studies presented in this report, suggest that approaches which consider the full panoply of environmental and cultural factors that influence a young person's outlook might be the best way to unlock the full value of growth mindset.

The case studies described in chapter 3 present valuable examples of how mindset interventions outside the classroom, targeted at parents or disengaged young people, might be implemented. These innovative projects should serve to raise our ambitions beyond the potential impact of small, 'tinkering' interventions within existing curriculums, to consider how mindset interventions might be the seed for more powerful innovation inside and outside schools.

We make the following recommendations:

- *More research should be undertaken to determine the particular impact of growth mindset interventions on students from socio-economically disadvantaged backgrounds, to examine interventions outside*

education, and to explore which interventions are the most effective.

The current evidence is very strong in many places, and weaker in others. In order to inform policy-making effectively, and address the particular needs of youth development in the UK, three research strands should be strengthened. More research into growth mindset interventions outside the education system – for example examining how interventions might have an impact for young people disengaged from the education system, in criminal rehabilitation and in deprived communities – is required. More research on the effect of growth mindset interventions on pupils from disadvantaged backgrounds should also be undertaken, given the significant attainment gap between rich and poor in the UK education system. Finally, having demonstrated the potential positive impact of growth mindset interventions, the logical next step for research in this area is to determine what kind of interventions are the most effective, and what is required for effective and consistent implementation.

- *New research methods need to be developed and applied in order to measure growth mindset where it counts – at the institutional level.* Currently, the evidence base is skewed towards the evaluation of simple, limited growth mindset interventions, like short online courses or workshops. This is largely a result of how impacts are commonly measured; through RCTs or evaluations in controlled conditions where potential variables are limited. Yet so much of the theory and evidence, including the case studies presented in this report, suggests that harder to measure whole organisation or whole school approaches – for example where growth mindsets are threaded through the curriculum, included in feedback systems and part of CPD – are the most effective methods of evaluation, rather than limited workshops or online lessons. In order to understand the potential impact of growth mindsets, we need to develop robust new ways to measure the more complex impact of mindset interventions on an institutional scale. Evaluation methods cannot limit educational innovation.

- *Growth mindset should be considered outside the school system.* Growth mindset could have a potentially transformative impact on a range of areas outside education, from social action programmes to prison reform, from community programmes for troubled young people to professional development in business and public services. Yet too little robust research has been conducted in this area. Policy-makers, third-sector practitioners and researchers should consider where outside the education system growth mindset interventions might be fruitfully applied.
- *The impact of threading growth mindset methods into ITT and CPD should be explored.* In some ITT programmes in the UK, growth mindset concepts are covered, in varying degrees of detail. Better understanding the impact of growth mindset concepts on teacher performance, whether that knowledge is conveyed through ITT or CPD, could tell us more about the most effective forms of intervention. It could also potentially point to new ways to institute growth mindset concepts in education at a systemic level. Evaluations should be conducted into the impact and efficacy of growth mindset training within ITT and CPD.

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There is a growing consensus that if the UK's young people are to rise to the challenges of the 21st century, we need a broader understanding of educational success. Character-building is increasingly central to education policy, a focus supported by a growing body of evidence detailing the importance of capabilities such as resilience, self-regulation and grit to attainment, wellbeing and other outcomes, and increasingly demonstrating that these traits can be developed through educational interventions. One of the most promising areas of research related to the non-academic development of young people is that of mindset.

This scoping report explores the key concepts behind mindset, the evidence supporting its importance across a range of outcomes, the impact of interventions, and practical examples of these interventions inside and outside of the classroom. Through a review of the evidence, interviews with a range of growth mindset leaders, and nationally representative polling of 14-18 year olds, this report presents new insights into mindset interventions. It argues that growth mindset could help safeguard the mental wellbeing of young people and counteract inequalities within our education system. It highlights gaps in the evidence base, challenges how we evaluate educational interventions, and recommends areas for further research.

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