# Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses.

Anna Foster

A Research & Development Project
Submitted for the
MSc Learning and Teaching 2016

# DEPOSIT AND CONSULTATION OF THESIS

One copy of your dissertation will be deposited in the Department of Education Library via the WebLearn site where it is intended to be available for consultation by all Library users. In order to facilitate this, the following form should be completed which will be inserted in the library copy your dissertation.

Note that some graphs/tables may be removed in order to comply with copyright restrictions.

---

| | |
|---|---|
| **Surname** | Foster |
| **First Name** | Anna |
| **Faculty Board** | Education |
| **Title of Dissertation** | Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses. |

***Declaration by the candidate as author of the dissertation***

1. I understand that I am the owner of this dissertation and that the copyright rests with me unless I specifically transfer it to another person.

2. I understand that the Department requires that I shall deposit a copy of my dissertation in the Department of Education Library via the WebLearn site where it shall be available for consultation, and that reproductions of it may be made for other Libraries so that it can be available to those who to consult it elsewhere. I understand that the Library, before allowing my dissertation to be consulted either in the original or in reproduced form, will require each person wishing to consult it to sign a declaration that he or she recognises that the copyright of this thesis belongs to me. I permit limited copying of my dissertation by individuals (no more than 5% or one chapter) for personal research use. No quotation from it and no information derived from it may be published without my prior written consent and I undertake to supply a current address to the Library so this consent can be sought.

3. I agree that my dissertation shall be available for consultation in accordance with paragraph 2 above.

## Table of Contents


| | |
|---|---|
| **Abstract** | 3 |
| **Introduction** | 4 |
| **Literature Review** | 6 |
| • What does the term 'mindset' mean? | 6 |
| • How does mindset benefit students? | 11 |
| • How is mindset best conveyed to students? | 19 |
| **Methodology** | 33 |
| • The Intervention | 33 |
| • Action Research | 35 |
| • Research Methods | 36 |
| • Questionnaires | 38 |
| • Group Interviews | 39 |
| • Pilot Study | 40 |
| • Methods of Data Analysis: The Group Interviews | 41 |
| • Methods of Data Analysis: The Questionnaires | 42 |
| • Ethical Considerations | 42 |
| • Collaboration | 45 |
| **Findings / Discussion of findings** | 47 |
| • What were the students' pre-existing attitudes towards intelligence, effort and failure (their pre-existing mindsets)? | 47 |
| • What impact did the intervention have? | 56 |
| • How can the efficacy of the intervention be improved for use with future cohorts? | 61 |
| **Conclusion** | 73 |
| **Limitations** | 75 |
| **References** | 77 |
| **Appendices** | 86 |
| • Appendix 1: Information, letters and consent forms for participants in the research | 86 |
| • Appendix 2: Mindset scheme of work and lesson resources | 94 |
| • Appendix 3: Research methods (cycle 1) | 125 |
| • Appendix 4: Research findings (cycle 1) | 129 |
| • Appendix 5: Research methods (cycle 2) | 147 |
| • Appendix 6: Research findings (cycle 2) | 162 |

# Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses.


## Abstract

This assignment explores ways to promote mindset theory, based on the research of Carol Dweck, amongst Year 10 female students at a single sex selective school. A review of relevant literature on the topic of mindsets shows how mindset theory can benefit students and how mindset can be conveyed to students. An intervention was planned, with the intention of moving students towards adopting growth mindset views. Students were surveyed both before and after the intervention, in order to assess its impact and success. It was found that the majority of students held growth mindset views before the intervention, although a significant number did not, and some experienced disadvantages associated with the fixed mindset, such as discomfort with leaving the comfort zone and high sensitivity to criticism. Following the intervention, a general shift in attitudes towards growth mindset ideas was observed, although it could not be ascertained how long lasting this change would be and not all students accepted the value of growth mindset theory. Strategies to improve the efficacy of the scheme of work for use with future cohorts are outlined and will be used within the school context over the next academic year.

# Introduction

How to promote a love of learning amongst students is a question that I continually discuss with my colleagues. Every day, throughout all departments in the school, dedicated teachers try a range of strategies to encourage students to embrace learning and develop a passion for their subjects. Student feedback, given both anecdotally, and through more formal methods such as student questionnaires and focus groups shows that many students do fully enjoy and engage with the learning process.

However, in my role as Head of Year 10 at a selective girls' secondary school, judged by Ofsted to be outstanding at the last inspection, I have also observed a growing trend within the year group. A small, but significant number of students are experiencing high levels of anxiety and stress as they focus on the outcomes of summative assessments, particularly if they feel they have underperformed. The students' concern is increasingly a source of worry to the subject teachers. This group of students is not underachieving or making poor progress; they are on target to achieve excellent outcomes, yet their concern about their test scores and other grades has a negative impact on their well-being and detracts from their enjoyment of the learning process. This phenomena is observed by pastoral leaders for all of the year groups in the school and is frequently discussed at Pastoral Leadership Group meetings, alongside varied strategies to promote student resilience, well-being and love of learning.

With this context in mind, it was with great interest that I read about Carol Dweck's mindset theory (2000), and her findings showing that bright girls are particularly vulnerable to a range of maladaptive thoughts and behaviours that stem from an entity theory of

intelligence (Dweck and Leggett, 1988). The thoughts and behaviours discussed in Dweck's research closely align with my observations, and those of my colleagues, about certain students in our school. For example, Dweck (2000) has found bright girls to be particularly susceptible to a lack of confidence in their ability; more likely to experience concern when faced with challenge, and more likely to lack resilience following a setback or failure.
As a pastoral leader, it is my responsibility to promote well-being and enjoyment of learning amongst all of the students in my year group. It was my observations in this role that provided me with a focus for my investigation: how can mindset theory be used to encourage enjoyment of the learning process amongst Year 10 students?

The importance of this priority has been highlighted by the Department of Education in the last month, after they published their findings from their *Longitudinal Study of Young People in England* (July 2016). The researchers, who used interviews with 30,000 Year 10 students alongside other research methods to gather their data, found that: "the mental wellbeing of year 10 students – particularly that of girls – had worsened" and that one in three girls aged 14-15 suffered from anxiety or depression (Lessof et al., 2016: 9).

# Literature Review

The popularity and use of mindset theory in schools has spread rapidly in the US and UK over recent years. There is a huge amount of literature on this topic, relating to beliefs about both intelligence and personality. For the purposes of this study, I chose to focus on mindset theory in relation to intelligence and learning, rather than in relation to character and personality. This was best suited to my aims, as I wished to help students to manage their beliefs about, and reactions to, their academic work.

The following questions guided my reading on this topic:

- What does the term 'mindset' mean?
- How does mindset benefit students?
- How is mindset best conveyed to students?

## What does the term 'mindset mean?

Dweck's mindset theory stems from a strong body of educational research that has shown intelligence to be malleable. Howard (1995: 86) argued that children had more potential for learning, given the right support, than popularly thought: 'the mind of a normal child can be developed through practice; learning capacity is a function of will and effort, endowments available to nearly all of us' (p. 88). Other researchers, such as Pintrich, Mckeachie and Lin (1987) and Brown (1997) have emphasised the importance of teaching learning skills and strategies to students in order to increase their IQ and attainment, and Ceci and Williams (1997) have found that staying in school for longer increases an individual's IQ. Sternberg (1999: 359) sees intelligence as 'developing expertise', in other words: 'the ongoing process of the acquisition and consolidation of a set of skills needed for a high level of mastery in

one of more domains of life performance'. Sternberg argues that: "The main constraint in achieving expertise is not some fixed prior level of capacity, but purposeful engagement involving direct instruction, active participation, role modelling, and reward' (1999: 361). Carol Dweck's mindset theory analyses the effects that an individual's beliefs about the nature of intelligence have on their behaviour and attainment. Dweck argues that there are two main views of intelligence, the first she calls the 'entity theory' (2000: 2) or 'fixed mindset' (2012:6). This view sees intelligence as 'a fixed or uncontrollable trait' (Dweck and Leggett, 1988: 262). Students with this view of intelligence believe that there is little they can do to change their intelligence; they see intelligence as something innate and inflexible. In contrast, Dweck describes a second theory of intelligence called the 'incremental theory' (Dweck 2000: 3) or 'growth mindset' (Dweck (2012: 7). Students with a growth mindset see intelligence as a 'malleable, increasable, controllable quality' (Dweck and Leggett, 1988: 262). This means that students with a growth mindset believe that everyone is able to make progress and improve their ability and attainment through hard work and perseverance. Dweck (2012) argues that the beliefs that students hold about the nature of intelligence lead them to adopt different behaviours. A fixed mindset will lead students to feel a need to continually prove their intelligence, therefore they are likely to select tasks and activities that are easy for them to complete successfully, rather than take on new challenges. They are also likely to feel that their intelligence is called into question whenever they find a task to be difficult and they are less likely to persevere with task that they find challenging. These behaviours are likely to lower their attainment levels.

In contrast, students with a growth mindset react very differently to challenges, and learning. The core belief that intelligence is malleable means that students with this belief

do not feel the same pressure to prove their intelligence. Instead, they are more focused on learning: they take on challenges readily and they persevere when faced with challenges, setbacks and failures. Research has shown that students with the growth mindset achieve at a higher level that those with a fixed mindset (Henderson and Dweck, 1990; Rhodewalt 1994).

Dweck's research emphasises the importance of adopting a growth mindset, in order to experience the benefits associated with this view of learning. However, other researchers have argued that her theory down plays the importance of genes in shaping an individual's intelligence. This issue is being discussed in the national press at the moment, following reports that Theresa May is in favour of expanding the number of grammar schools in the UK. In an online article for *The Telegraph*, Ben Riley-Smith quotes a government source as saying: 'If you're a really bright kid you should have the opportunity to excel as far as your talents take you' (6th August, 2016). In contrast, Fiona Millar argues in *The Guardian* online that: 'there is an uncomfortable conviction lurking beneath the concept of dividing children up on the basis of a test that many take aged 10. That is the belief that intelligence, ability and human potential are rigidly fixed and unaffected by family income, parental support or sheer personal endeavour' (23rd August 2016).

Such debates about the nature of intelligence date back to the early 1900s, when Binet developed and published the first intelligence test, at the request of the French government. He intended the tests to be used to identify underachieving children so that they could receive additional support for their learning (Dweck, 2000). In 1916, Terman published an adapted version of Binet's test and used IQ tests as a means of categorising

children according to their perceived level of hereditary intelligence. Eysenck also argued that intelligence was biologically determined and that potential could be measured, even in new-born babies: 'EEG patterns recorded in 36-hour-old babies have been found to predict later IQ' (1988: 65). Cyril Burt, shared the view that IQ was hereditary and argued that: 'this general intellectual factor, appears to be inherited, or at least inborn. Neither knowledge nor practice, neither interest nor industry, will avail to increase it' (1937: 10-11). The research on which Burt based his claims for fixed intelligence was later discredited as fraudulent: 'a study offered as scientific exploration but intended as political tactic to support his educational ideology' (Tucker, 1997: 156). Burt took a key role in planning the Tripartite Education System following the 1944 Education Act. Under this system of education, students took an IQ test at the age of 11, the results of which dictated the type of school they would attend: grammar, technical or secondary modern.

However, more recent research has strongly called into question arguments for the fixed and innate nature of intelligence, and by extension, the efficacy of ability and IQ tests. Flynn (1998) analysed the mean scores of intelligence tests and found that the scores had increased at such a high rate that the pattern could not have been caused by genetic changes. He argued that the increase was caused by changes in education that led to more emphasis on problem solving (which gave students more effective preparation for IQ tests). Sternberg (1999: 359-360) points out the similarities in "expertise" needed to perform well on IQ test and at school or in the workplace, thereby creating a correlation between the two: "But such correlations represent no intrinsic relation between intelligence and other kinds of performance, but rather overlaps with the kinds of expertise needed to perform well under different kinds of circumstances'. Stobart (2014) argues that IQ tests show how

much someone has gained form their past education and environment, rather than their future potential.

Nevertheless, some contemporary researchers still believe that mindset theory underplays the importance of IQ. Plomin, professor of behavioural genetics at Kings College London, argues that the psychological trait of persistence is about 30 or 40 percent attributable to the influence of genes (cited by Lee and Wiggins, TES article, 2015). Kristjansson (2008: 226) also criticises Dweck for failing to address 'the fact that one's IQ score is, as a matter of fact, quite stable and reliable'.

Ultimately, the most convincing theories of intelligence are those which acknowledge the complex relationship between genes, environment, education and intelligence. Stobart (2014: 25) argues that: 'complex behaviours are multiply determined and … it is how genes are expressed that counts ... genetic patterns … can be modified … we develop rather than inherit, traits' (2014: 25). Similarly, Dweck (2012: 5) has responded to criticisms that mindset theory underplays the role of genetics by arguing that: 'People may start with different temperaments and different aptitudes, but it is clear that experience, training and personal effort take them the rest of the way ... a person's true potential is unknown (and unknowable)'.

A second criticism of mindset theory has been put forward by Kristjansson, who criticises "strict dichotomies" that Dweck uses in her research: 'It strains credulity that people – in every domain – fall so neatly and evenly into two distinct categories' (2008: 225). Kristjansson argues that Dweck's questionnaires, used to gather data about the

respondents' mindsets: 'seem to be so tailored as to catch within their net exaggeratedly divisive answers' (2008: 225). Tim O'Brien (2015) has voiced concerns about the dangers of dividing students into categories (fixed and growth mindsets) in an Editorial for the *Times Educational Supplement*: 'At its core lies a binary world more reminiscent of fairy takes than reality' (2015: 1). O'Brien warns that such categorising could lead to stereotyping of students by teachers, and argues that teachers must not lose sight of the importance of building relationships with their students rather than using mindset theory to define students. However, Dweck (2012: 46) has explained this clear division as being used 'for the sake of simplicity'. Dweck argues that, when using mindset theory with students, it is important to bear in mind that 'most people have elements of both mindsets within them and people can also have different mindsets in different areas' (2012: 47).

## How does mindset benefit students?

### Failure

Dweck's research has shown that an individual's mindset strongly affects their beliefs about, and reactions to, failure, and that a growth mindset allows individuals to respond to failure in a far more productive way than a fixed mindset. Dweck has identified two main responses to failure: the 'helpless' response (Dweck and Reppucci 1973: 116) and the 'mastery' response (Diener and Dweck: 1978: 460). Dweck and Reppucci (1973: 116) use the term 'helpless' to describe the response of students who believe that they are powerless to control a situation once they have failed. Diener and Dweck (1978) later expanded the term 'helpless' to include the behaviours and outcomes of the helpless response, namely a loss of confidence in ability or intelligence, lowering of expectations

about their abilities, a tendency to give up, and decreasing levels of attainment and achievement. Diener and Dweck (1978, 1980: 460) use the term 'mastery oriented' to refer to the ways that students with a growth mindset respond to failure: they continue to work towards mastery of a task in spite of difficulty or failure.

In the experiments that led to these conclusions, Dweck and Reppucci (1973) gave 40 fifth grade children a mixture of solvable and insolvable tasks. They found that the children who attributed their failure to effort persisted with the task, while those who attributed the failure to a lack of ability gave up. Diener and Dweck (1978) gave fifth grade students questionnaires, which they used to sort them into groups according to whether they attributed events to factors beyond their control (the helpless response) or personal responsibility (the mastery oriented response). They then gave the students puzzles to solve and asked them to verbalise their thoughts as puzzles became too difficult for them. They found that students in the helpless group attributed their failure to a deficiency in ability, whereas the mastery oriented children attributed their failures to 'lack of effort, bad luck, the fairness of the experimenter, and the increased difficulty of the task' (Diener and Dweck, 1978: 456). Additionally, the students in the helpless group readily gave up on the tasks, whereas the mastery oriented students continued to focus on the tasks and persevered in their efforts to solve them.

Diener and Dweck's experiment (1978) can be criticised on the grounds that student behaviour during an experiment may not relate to their behaviour in their everyday lives. Licht and Dweck (1984) researched how helpless and mastery responses affected fifth grade students in a classroom setting, in order to test the findings from their laboratory

experiments within a more natural school setting. They divided students into mastery oriented students and helpless students by means of a questionnaire. They gave the students new content to learn, and deliberately inserted a confusing passage of writing in the information. Their findings showed that, when faced with difficulty, the performance of the mastery oriented students was largely unaffected, whereas the helpless group performed at much lower level, showing that helpless students had great difficulty when coping with setbacks and that encountering difficulty had a measurable impact on their attainment. This provides some evidence to suggest that the findings of Diener and Dweck's experiment (1978) were borne out in the classroom setting, although generalisations cannot be made on the basis of such small research samples.

Throughout her research and writing, Dweck emphasises the importance of persevering when faced with failure. Her emphasis on the benefits of persistence and grit (Dweck and Reppucci, 1973; Diener and Dweck, 1978; Licht and Dweck, 1984) has led some commentators to mistakenly interpret the theory as recommending perseverance at all times and at all costs, for example, Plomin argues that: 'If you try to tell kids who have trouble learning "you can do it, you can change", you can actually do some harm. Because some kids are going to find it really difficult; it isn't just a matter of positive thinking' (quoted by Lee and Wiggins in *TES* article, 2015). Dweck (2000) has attributed such objections to a misinterpretation of her theory, and points to Janoff-Bulman and Brickman (1981: 207) who have argued that: 'Ultimately it is neither persistence (as characteristically attributed to people who expect to do well) nor lack of persistence (as characteristically attributed to people who expect to do poorly) that is crucial. It is rather the ability to discriminate situations in which persistence will pay off from situations in which it will not'.

Dweck clarifies in *Self-Theories* (2000: 13) that it is essential to 'opt out' of a task 'when it is genuinely beyond someone's current capabilities or when the cost of persisting is too great'. Indeed, refusal to give up at any cost may reflect an individual's fear that one failure can define them: 'The belief that failure measures you is a key factor: either getting out too quickly or staying in too long – the maladaptive response is based on the concern that failure spells out serious personal inadequacy' (Dweck, 2000: 13).

Achievement Goals

A second benefit of adopting a growth mindset is that it leads students to set themselves more useful achievement goals. In the course of her research, Dweck has identified two main types of achievement goals: performance goals and learning goals. Performance goals are those which aim to prove the students' ability in the eyes of others; they are geared towards winning 'positive judgements of your competence and avoiding negative ones' (Dweck, 2000: 15). In contrast, learning goals are those which aim to increase the students' attainment and ability: 'a desire to learn new skills, master new tasks, or understand new things' (Dweck, 2000: 15). Research shows that most people work towards a combination of both learning goals and performance goals (Ames and Archer, 1998; Harackiewicz, Barron, Carter, Lehto, and Eliot, 1997).

Elliott and Dweck (1988: 256) showed that the goals that individuals choose to pursue stem from their mindset. They manipulated the goals of different groups of students by orienting one group towards 'evaluations of ability' and another group towards 'the value of the skill to be learned'. Students were then asked to select a task that led them to either performance goal or learning goal. Elliot and Dweck (1988) found that those that had been

oriented towards learning the skill chose learning goal tasks and those that had been oriented towards the evaluation of their ability chose performance goal tasks. Therefore, due to their concern about being judged as less competent, the students who had been oriented towards evaluations of ability rejected the chance to learn new skills.

Ames (1984) has shown that students with a fixed mindset are likely to favour performance goals over learning goals and that they are disadvantaged as a result. In *Self-Theories*, (2000: 17-18) Dweck describes unpublished research through which Farrell and Dweck (1985) tested the findings of the laboratory experiments in a classroom setting. Junior high school students were assessed to see if they had performance goals or learning goals. They were then taught a new unit as part of their science lessons, which was followed by a test that required them to transfer the skills that they had learned to new tasks. The findings showed that the students who were given learning goals produced a greater amount of work, achieved a higher level on the test and made more effective use of the rules they had learned. The findings that students with learning goals use study skills and learning strategies more effectively has been supported by several other studies (Ames and Archer, 1988; Graham and Golon, 1991; Pintrich and Garcia, 1991).

However, other research has contradicted these findings. Dupeyrat and Marin (2005) researched Dweck's theory of motivation with adults who had chosen to return to school. Their findings support Dweck's, in that they found that mastery goals aided learning and raised attainment, while performance gaols had a detrimental effect. However, they did not find a link between theories of intelligence and the types of achievement goals that the adults pursued, or between their theories of intelligence and their level of cognitive

engagement. Similarly, O'Shea, Cleary, and Breen (2010) did not find that individuals with an entity theory of intelligence were more likely to hold performance goals.

Effort

Dweck's research has shown that an individual's beliefs about effort are greatly affected by their mindset: "in the entity theory framework effort measures intelligence, and it … signifies low intelligence. In the incremental theory framework, effort is what turns on people's intelligence and allows them to use it to full advantage (2000: 39).
Henderson and Dweck (1990) studied seventh grade students during their first term at junior high school. They found that students with an incremental theory of intelligence wished to be challenged and saw effort as the key to ensure that they improved over time. As a result of these beliefs, they made more progress than students with an entity theory of intelligence. Similarly, Sorich and Dweck (1999) found that students with an entity theory of intelligence saw effort as a sign of low ability and, as a result, tried to minimise the amount of effort that they put in to their school work. These findings are further borne out by unpublished studies cited in *Self-Theories* (2000) by Leggett and Dweck (1986), and Mueller and Dweck (1997). Dweck (2000) argues that it this belief about the meaning of effort leads to differences in attainment, as students with an entity theory are far less likely to make the required effort, over a period of time, to master difficult and challenging tasks.

Such findings are further supported by Covington (1992: 85) who has found that students wish to see themselves in a positive light and 'struggle to escape being labelled as stupid'. This can lead to some students using self-handicapping strategies to provide explanations of failure that do not involve a lack of intelligence. Midgley, Arunkumar and Urdan (1996)

define self-handicapping strategies as those which 'precede success or failure' as a 'proactive attempt to manipulate others' perceptions of the causes of performance outcomes' (1996: 423). Rhodewalt (1994) found that students with an entity theory of intelligence were more likely to use a deliberate lack of effort as a self-handicapping strategy. In a longitudinal study, Zukerman, Kieffer and Knee (1998) found that self-handicapping students performed less well academically than students who did not self-handicap.

Some practitioners have misunderstood the meaning of effort in mindset theory. For example, some teachers have interpreted the theory to mean that, with enough effort, anyone can achieve anything. Dweck described this problem in an interview with TES, published on 17th July 2014: 'The main mistake that I have seen teachers make is thinking that just telling children to "try harder" is promoting a growth mindset, but that by itself isn't going to be enough'. When using mindset theory with students, it is essential to remember that if students are putting in effort but not improving or learning, they need to be helped to change their approach, for example, with different learning strategies or study skills.

A second common misunderstanding around Dweck's theory about effort, is that effort is always to be lauded, even if the goal being pursued is unhelpful. For example, students many put in great amounts of effort in order to placate overly-demanding parents, or to reach high grades so that they can prove their intelligence. Such goals can lead to increased anxiety and pressure. In *Self-theories,* (2000: 149) Dweck clarifies that effort should be expended in pursuit of learning goals rather than performance goals, emphasising that with

a growth mindset: 'effort is in the service of learning and growth. That is what is valued'. The goal towards which effort is directed is an important aspect of mindset theory; effort that does not lead to any positive gain or improvement is not seen as beneficial.

There is also a bigger picture to consider when analysing the importance of effort in student learning. Gorard and Huat See (2013) have reviewed a range of other factors that can impact on student attainment, such as teacher effectiveness and the student's economic background. An emphasis on effort could result in placing the blame for low attainment on students, for factors that are beyond their control. Dweck (2012: 47-48) addresses this question by acknowledging that life is not a level playing field and students with the advantage of a wealthy, well-connected family are more likely to succeed: '… before we judge, let's remember that effort isn't everything and not all effort is created equal'. This is not to say that helping a disadvantaged student to adopt a growth mindset will not be beneficial; as Yeager and Walton (2011: 274) point out: 'Psychological interventions change students' mindsets to help them take greater advantage of available learning opportunities'.

Mindset and negative stereotypes

Research shows that a further benefit of adopting an incremental view of intelligence is that it can improve the attainment of groups that are at risk of being affected by negative stereotyping. Steele and Aronson (1995) found that African-American students under-performed in academic tests when they were reminded of stereotypes about academic ability and their ethnic group. They used the term 'stereotype threat' to describe 'being at risk of confirming, as self-characteristic, a negative stereotype about one's group' (1995: 797). Dweck (2012: 75) argues that feeling concern, even subconsciously, about confirming a negative stereotype can lead individuals in disadvantaged groups to underperform.

However, in Dweck's view (2012), holding an incremental theory of intelligence can arm individuals against the negative effects of the stereotype threat; the belief that character and intelligence can be developed leads individuals to understand that they cannot be labelled as innately and unalterably inferior. In *Self-theories* (2000), Dweck describes an unpublished study carried out by Aronson and Fried (1998) where the researchers taught African American undergraduate students the incremental theory of intelligence. They found that, for the group that were taught the incremental theory of intelligence, the attainment gap between white and black students decreased.

## How is mindset best conveyed?

Research shows us that mindsets can be changed. In fact, Dweck (2012) argues that just knowing about the two mindsets empowers individuals to choose their mindset in a given situation. However, Kristjansson (2008) criticises Dweck for the lack of detail in her work about how a shift in mindset occurs: 'The problem is that we are given scant clues about what could bring about such a transformation ... little of substance is said about how to move beyond a fixed mindset'.

Many studies in this area of academic research show researchers deliberately manipulating the mindsets of the individuals that are studying. For example, Dweck (1975: 674) used 'Attribution Retraining Treatment' to change the perspectives of a group of children (aged between 8-13 years old) who reacted with extreme helplessness to experiences of failure. The experimenters gave the students verbal feedback in which they attributed failure to lack of effort when the students failed to complete certain tasks that the researchers had even them. This feedback brought about a change in the students' explanations for failure (which

they began to attribute to effort rather than ability), as well as allowing the students to maintain their levels of achievement, despite having failed at some tasks. These findings are supported by other studies by Andrew and Debus (1978) and Schunk (1982). Similarly, Anderson (1983) was able to manipulate students to attribute failure to either ability or effort by verbally giving different information to different groups of students before they were asked to persuade other students to donate blood. One group were told that the researchers were looking at 'personal styles or traits' while the other group were told that they were looking at effort (1983: 1140). Those that were manipulated to emphasise effort had a higher success rate that those who were manipulated to emphasise innate characteristics.

In *Self-theories* (2000), Dweck describes an unpublished study by Bergen (1992) in which college students were given articles that attributed success to either innate ability or to effort. Bergen observed that the students' theories of intelligence changed depending on which article they had read and those that read the article emphasising the importance of effort were more resilient when dealing with failure. In another unpublished study, cited in *Self-Theories* (2000) Hong et al. (1998) used the same articles with groups of college students and assessed whether the article that they read would affect their goal choice after a test. They found that students who read the article attributing success to innate ability and who also performed badly on the test were more likely to refuse extra help with their attainment. Dweck (2012: 24) concludes that: 'we can influence students' theories. Although the students came to our study with their own theories, what we told them had a clear impact. This means that people's theories of intelligence are malleable.'

Although these examples show that the students' mindsets were manipulated, it is impossible to see exactly how long these effects may have lasted. The laboratory nature of many of these studies, in addition to the relatively small sample sizes, mean that the findings cannot be necessarily be applied to experiences in everyday life. However, such studies do appear to show that, at least in these situations: 'personality is dynamic. When a situation strongly highlights a different belief, goal, or mode of action, it can "tip" the person in that direction, at least temporarily' (Dweck, 2000: 79).

Mindset Interventions

Researchers have used a range of strategies, activities and interventions in attempts to shift students away from entity theories of intelligence and towards incremental theories. The strategies used can be divided into two main types: those that teach students directly about the malleability of the brain and that they can grow their intelligence, and those that seek to convey a similar message indirectly, for example through the use of subject related activities; Yeager and Walton have described these strategies as 'stealthy' (2011: 284). Yeager and Walton (2011) have analysed why psychological interventions, in cases such as Blackwell et al. (2007); Good et al (2003) and Aronson et al. (2002) can be so effective. They argue that relatively brief interventions can have long lasting positive impacts because they target core beliefs that, when changed, can set students on a different trajectory. Yeager and Walton (2011) outline several key factors that can led to a successful psychological intervention. Firstly, 'they begin with a precise understanding of students' subjective experiences in school' (2011: 283). Secondly, each of the interventions made very effective use of the psychology of persuasion, thereby increasing the impact of the interventions on students. Additionally, they argue that indirect or 'stealthy' (2011: 285) methods can be

more effective for psychological interventions, as these methods do not convey to students that there is a problem with them or with their thought processes (which can lead to feelings of inferiority and to resistance to the theory).

Yeager and Walton (2011) also point out that, if an intervention is delivered by a teacher, rather than a researcher, the individual teacher will play a key role in determining how successful the intervention will be. They also consider the timing of an intervention to be important; they suggest that delivering psychological interventions at 'key educational junctures' for example at the beginning of the school year, or at a moment of significant transition may help to maximise the impact.

Interventions with successful results

Aronson, Fried and Good (2002) used a combination of overt and indirect methods in their study, in which they aimed to arm African American college students against the negative effects of stereotype threat by teaching the students the incremental theory of intelligence. They showed students a film that explained the malleability of the brain and how the brain grows through learning. The researchers then used a writing task to reiterate the incremental theory of intelligence. The researchers used the idea of pen pals for this activity; the college students did not know that the pen pals they were writing to did not really exist. The researchers asked the students to write letters to junior high students who were finding it difficult to manage their workload, and to explain to their pen pal that intelligence can be increased. The intervention was successful and students who learned about the incremental theory of intelligence attained more highly than a control group, and the black students who took part in this intervention reported feeling a greater sense of fulfilment from, and interest towards, their academic work.

Good, Aronson and Inzlicht (2003) conducted a field experiment with seventh grade Black, Hispanic and Latino students at a rural school to test the efficacy of teaching the incremental theory of intelligence as a way of decreasing student vulnerability to stereotype threat. They used indirect methods in their study (student mentoring and ICT activities) to convey their message to the seventh grade students. Firstly, the researchers trained college students from the University of Texas about the incremental theory of intelligence, including scientific information about how the brain grows as we learn, and gave them strategies to pass their learning about intelligence on to the seventh grade students. The college students, acting as mentors, had two meetings with their mentees and communicated with them via e-mail throughout the year. The seventh grade students completed ICT activities to reinforce their learning; they were given access to online information that supported what their mentors had taught them, and they were asked to present their learning on their own, originally designed, web page. The intervention was successful in helping students to overcome stereotype threat; in comparison to control groups, the students that received the intervention improved their attainment on maths and reading tests. Good, Aronson and Inzlicht (2003: 659) concluded that: 'students improved by learning attitudes that helped them contend with the anxieties that research has shown develop in part from their social identities'.

Blackwell, Trzesniewski and Dweck (2007) used direct methods in an intervention aiming to move students at a New York City public school towards an incremental understanding of intelligence and to assess the impact that this had on their attainment in maths. They created an eight session workshop that taught students directly about the malleability of the brain, and about how intelligence can be developed through challenge and learning.

Students were also taught new study skills and were encouraged to apply their learning about growth mindsets to their academic subjects. The students' attainment in maths was measured at the end of the year, and the students who were taught the incremental theory achieved at a higher level than a control group.

Although these studies indicate great success in their use of an intervention to improve student attainment, it is important to note that they had relatively small sample sizes and they based their conclusions on only quantitative data. Additionally, we do not know the effect that the intervention had on participants in the longer term.

Paunesku et al. (2015) created an intervention to assess whether previously successful, but small-scale, psychological interventions could be scaled up, with a sample of more than 1,500 students in 13 high schools across the USA. They combined a growth mindset intervention, designed to teach about the malleability of intelligence, with a 'sense of purpose' intervention, aimed to lead students to reflect on 'how working hard and learning in school can help them accomplish meaningful goals beyond the self' (Paunesku et al, 2015: 785). Their aim was to see increased academic attainment on a large scale, particularly with students who were working at a relatively low level.

The researchers took previously successful, small scale interventions and adapted them for a larger audience by changing them into modules that could be accessed by students online. Paunesku et al (2015) argue that mindset interventions can take place in an hour or less and that standardized materials can be used because the aim of the intervention is to convey one key piece of information (that intelligence is malleable). They also argue that, due to

the universal nature of the mindset theory of intelligence, and the use of 'common narratives' and 'objective information (e.g. scientific contexts)' that the same intervention materials can be used across several different school contexts (Paunesku et al., 2015: 785). The students were given an article to read, explaining the scientific theory behind the malleability of intelligence, and the importance of difficulty and failure as learning experiences. The students then consolidated their learning through two writing exercises: one asked them to explain the scientific explanation that they had learned in their own words, and in a second, they wrote a letter to a fictional student, to advise him what to do as he struggled with his school work. The intervention was successful in bringing about improved attainment for low performing students across the different schools over the course of one school term.

Interventions with conflicting or ambiguous results

Rienzo, Rolfe and Wilkinson (2015) used two separate interventions with year 5 students in six schools in the UK. Their aim was to move students towards adopting a growth mindset with the intended result of improving their level of academic achievement. The first intervention was made up of six workshop sessions, designed to teach a growth mindset to 144 students in an intervention group, to be compared with 142 in the control group. The workshops with the intervention group used both direct and indirect methods. Students were taught about the two mindsets, and about the language associated with them. They were also given spelling and maths activities to complete, which led students to work towards experimenting with different strategies, and they were taught about the importance of effort and repeated practice; they had a final session that summarised and recapped their learning.

The second intervention was made up of two sessions of teaching training (each lasting for half of a day), where the researchers worked with teachers to show them strategies to convey to students, through their interactions with them, about the malleability of intelligence. The teachers were taught the theory behind mindset and were shown examples of the types of changes brought about through mindset in the USA. They were also taught about strategies that could be used to foster growth mindsets with their students, for example through directed feedback, their use of rewards and their reactions to errors made by students. The second training session was used to discuss teacher experiences and share good practice and ways to address challenges.

Although the students who took part in the growth mindset intervention made more progress in English and maths than the students in the control group, the students whose teachers received growth mindset training made less progress in English than the control group. However, neither of these differences were statistically significant, and so the differences could be the result of chance rather than the effect of the interventions. This does not mean that the interventions did not have an impact, particularly as the rise in English attainment for the intervention group was very close to showing statistical significance. However, the study must be treated with caution due to several factors. Firstly, the impact of the studies may have been diluted by the fact that schools were already conveying elements of mindset theory to students before the intervention. Secondly, it is possible that the control schools may have incorporated aspects of mindset theory in their teaching. Additionally, the interventions may have been too brief to have a lasting impact.

Ahmavaara and Houston (2007) used questionnaires with 856 secondary school students in years 7 and 10 from two selective and two non-selective secondary schools in order to investigate the effects that confidence and theories of intelligence had on levels of aspiration in the different types of schools. They found slightly higher levels of incremental theories of intelligence among students attending selective schools than those attending non-selective schools, and they found that, in selective schools, students with a more incremental theory also had higher levels of aspiration. Possible explanations for these patterns are given: those who have an incremental theory of intelligence may be more motivated and therefore more likely to gain entry to selective schools, or, alternatively, students in non-selective schools may explain their situation as a fixed quality and therefore preserve their feelings of self-worth; this belief can lead them to conclude that their failure to get into a selective school was not due to lack of effort or factors within their control. Interestingly, Ahmavaara and Houston's (2007) findings conflicted with Dweck' and Leggett's findings (1998). Dweck and Leggett (1998) found that girls were more likely to hold an entity view of intelligence than boys and that girls were more likely to show a helpless response when faced with setback or failure. Ahmavaara and Houston (2007) found no evidence of a link between gender and theory of intelligence.

Donohoe, Topping and Hannah (2012) used Dweck's *Brainology* computer programme with 33 students aged 13-14. The *Brainology* package is made up of four modules that take approximately 40 minutes each to complete. The modules used direct methods to convey mindset: students are taught about the malleability of the brain; they are shown how intelligence can grow, and they are taught about the importance of effort and study skills. Donohoe et al. (2012) analysed the effects that the *Brainology* programme had on the

students' mindsets and whether it had any effect on their resiliency. They found that the programme brought about a short term change in attitude, but this did not last: the intervention group did not show greater long term resiliency or achieve more highly than the control group. The researchers concluded that: 'The programme had no significant impact upon pupil's sense of mastery or overall resiliency at any point' (2012: 654). One strength of their study is that they used a combination of qualitative and quantitative methods, which is an advantage when most other studies of this kind had used only quantitative methods. However, they were working with a small sample, and their data showed that most of the students had growth mindset tendencies before the study began, therefore, it is impossible to make any generalisations from their study.

Furnham, Chamorro-Premuzic and McGougall (2003) carried out a longitudinal survey of university students in London and found that the students' theory of intelligence (whether they held an incremental theory or an entity theory) did not have a significant effect on their academic performance. They concluded that personality traits (particularly conscientiousness and extraversion) were more important than theories of intelligence in terms of their relation to academic attainment.

The role of teachers in promoting mindsets

There is evidence to suggest that the values and behaviour of individual teachers play an important role in conveying mindset to students. Elliot and Dweck's (1988) study indicates that by setting learning goals in the classroom, rather than performance goals, teachers can move students towards adopting a mastery response to setbacks and challenge. Dweck and Leggett (1988) and Gollwitzer and Schaal (2001) have found that teachers who have an

incremental mindset themselves are able to convey mindset to students more effectively. Another way that the teacher is strongly influential is through the level of control that they have over a class, as well as the amount of importance that they give to the intervention; as Yeager and Walton (2011: 289) argue: 'The history of school reform reminds us that teachers can vary in whether they deliver an intervention in the way intended or in name only, changing the meaning of the intervention'. However, they do go on to say that, as psychological interventions tend to be, 'brief, discrete exercises' there is greater potential to ensure continuity between different teachers (2011: 289).

As previously discussed, the findings of Rienzo, Rolfe and Wilkinson (2015) appear to conflict with views emphasising the importance of the individual teacher, because they found that giving teachers training about mindset theory made no difference to student outcomes. However, the study did not include any assessment of the theories actually held by the teachers, or of how far they believed in the value of mindset theory.

Use of praise

Several studies have found that teachers' (and parents') use of praise and feedback are particularly important in encouraging students to adopt growth mindsets. Dweck argues that praising or criticising a student's intelligence, often intended as a way of boosting their confidence and increasing their motivation, actually 'harms their motivation and it harms their performance' (2012: 175). Dweck (2000) has found that person oriented feedback leads students to feel like: 'worthy people only when they have succeeded, and they feel deficient or worthless when they fail' (114). Dweck argues that, in order to improve a child's

attainment, we should praise them for: 'the growth oriented process – what they accomplished though practice, study, persistence, and good strategies' (2012: 177).

The importance of praise in promoting growth mindsets has been emphasised by Dweck throughout her research. Mueller and Dweck (1998) found that praising fifth grade students for their intelligence was detrimental to their motivation and led them to pursue performance goals, thereby decreasing their resilience. After being praised for their intelligence, students were also more likely to describe intelligence using a fixed entity framework than those who had been were praised for their effort. Similarly, Kamins and Dweck (1999) studied the effects of different types of praise on kindergarten children and found that person praise or criticism led to significantly more helpless responses than process praise or criticism. However, as Kristjansson (2008) points out, it is important to consider the context in which praise is given, in order to fully appreciate how the child or student understands the praise. He criticises Dweck's analysis of the use of praise for its 'strict dualism' which he describes as 'impractical and unrealistic' (2008: 225). He goes on to argue that: 'The exact phrasing of the praise cannot matter as much as the more general educational context … It is no wonder that some parents find Dweck's advice here artificial, if not downright corny" (2008: 225-226).

When considering the importance of directed praise as a strategy to foster a growth mindset, one must also consider how feedback is used throughout the school (for example written comments on work etc.) and other school practices, such as the use of ability setting; the use of grading; the practice of giving median test scores on school reports, and the description of certain students as 'gifted and talented'. Such practices within schools may indirectly foster a fixed mindset amongst students, perhaps suggesting that, for

mindset interventions to fully work, they need to be accompanied by particular conditions within the wider school context and learning environment.

## Conclusions

I used four questions to guide my review of the relevant literature for this topic. Firstly, I wished to define the term 'mindset', which refers to an individual's view of intelligence and to the behaviours that stem from that belief. Secondly, I wished to clarify how mindset theory explained the nature of intelligence. I have found that, in mindset theory, although individuals are understood to have different genetic endowments, the malleability of the brain is seen to be of paramount importance. Therefore, mindset theory emphasises the ability of individuals to grow their intelligence through concerted effort and perseverance. Thirdly, I aimed to review the benefits associated with adopting a growth mindset. Research has shown that these are numerous. Individuals with a growth mindset show increased resilience when faced with failure or setback; they have a desire to improve performance, increase attainment and to learn, rather than a desire to repeatedly prove intelligence; they understand the value of effort and see effort as the key to continued improvement, and they are less vulnerable to the effects of labelling. Finally, I wished to review how mindset is best conveyed. I have found that researchers have used both direct and indirect methods to convey mindset to students. Direct methods are those that explicitly teach about the malleability of the brain and explain the meaning of the two mindsets. Other researchers have used indirect methods, such as the use of writing activities or ICT activities, specifically designed to encourage students to move towards adopting a growth mindset. I believe that using a combination of both methods may be the most effective strategy to use. Both direct and indirect methods have been found to be

effective in a range of studies; they can be used to compliment and reinforce each other. Finally, it is clear that while an intervention must be carefully planned, there are other factors that will affect the success of a mindset intervention, for example, the views and actions of the teacher delivering the intervention; the timing of the intervention, and the processes and practices within the wider context of the school.

Having completed my review of the relevant literature relating to mindset theory, I have decided to plan and implement an intervention with the aim of encouraging students in Year 10 to adopt a growth mindset. I am now able to formulate three questions that will guide my research:

- What were the students' pre-existing attitudes towards intelligence, effort and failure (their pre-existing mindsets)?
- What impact did the intervention have?
- How can the efficacy of the intervention be improved for use with future cohorts?

# Methodology

## The Intervention

After reviewing the literature about mindset theory, I decided to develop a scheme of work to be used in PSHCE and registration sessions to promote growth mindsets to Year 10 students. As pastoral leader for Year 10, it is part of my role to plan the PSHCE scheme of work that tutors use with their students for one hour every fortnight. Additionally, it is my responsibility to provide guidance to tutors about activities and tasks that should be completed during registrations sessions (which last for 25 minutes every morning). I planned the intervention to take place throughout term 4 (2016). This was a five week term; students would have an hour long introductory lesson on mindset in the first week, which would be followed by four shorter sessions delivered in morning registrations throughout the term (one a week, with the exact date of delivery chosen by the tutor). The literature review informed the planning of the intervention. Yeager and Walton (2011) argue that the timing of such interventions are very significant, and that key points in the educational year should be chosen, to maximise the impact. In this instance, I had somewhat limited control over the timing of the intervention, due to the necessity of securing ethical approval before the intervention could begin, but it was an advantage that the intervention took place relatively early in the GCSE course. In future years, the intervention could be timed to fall at the very beginning of the academic year.

The content, activities and resources for the intervention were also strongly influenced by my literature review. As Yeager and Walton (2011) point out, there is little use in taking materials that have been found effective in previous interventions and using them without

carefully considering their likely efficacy in a new context, however, it is likely that some strategies and resources that have been previously used may also work in a new context. Panunesku et al. (2015) argue that, due to the universal nature of the mindset theory of intelligence, the same intervention materials can be used across several different school contexts.

With this in mind, I selected various resources and activities, in addition to my own, from Dweck's *Mindset* (2012), Dweck's *Brainology* resources (available online), the *Times Educational Supplement*, and ideas inspired by and adapted from previously successful interventions discussed in the literature review. When planning the PSHCE lesson, I made use of direct methods, by teaching students explicitly about the malleability of intelligence and the science behind the learning process. I used a film clip that explained about the malleability of the brain and how the brain grows through learning; a similar technique was found to be effective by Aronson et al. (2002) and by Blackwell et al. (2007).

The literature review also informed the content and activities for the registration sessions. The four registration sessions aimed to highlight to students how to adopt a growth mindset and the key benefits of doing so: the positive results of effort, resilience and resistance to labels. As well as reinforcing the learning form the PSHCE session, and teaching directly about mindset theory, the registration sessions also included indirect methods. For example, the session entitled *Resilience and Failure* included an activity asking students to write a letter to a Year 7 student, which was modelled on the strategies used by Aronson, Fried and Good (2002) and Paunesku et al (2015). The importance of using study skills is emphasised in the session entitled *Taking Control of your Mindset*, something that was also

emphasised by Blackwell et al. (2007). It is important that students have ownership and influence over the lessons, therefore, the sessions also include opportunities for student discussion throughout, and tutors were encouraged to elicit responses from students whenever possible.

## Action Research

It was clear that action research was the most appropriate and useful process for my study. Kemmis and McTaggart define the process of action research in the following way: 'to do action research is to plan, act, observe and reflect more carefully, more systematically, and more rigorously than one usually does in everyday life' (1992: 10). Cohen and Manion have defined action research as 'a small-scale intervention in the functioning of the real world and a close examination of the effects of such an intervention' (2007: 297). Zuber-Skerritt suggests that: 'the aims of any action research project or programme are to bring about practical improvement, innovation, change or development of social practice, and the practitioners' better understanding of their practices' (1996b: 83). Although there is some debate about the precise definition of action research, the key features of (1) planning an intervention (2) reflecting on it systematically and in detail (3) using this process to bring out improvements in one's practice, are clearly well suited to my aims for this research project. Another key aspect of action research, as outlined by Kemmis and McTaggart (1992) is the cyclical nature of the research. After planning the intervention, the researcher collects and analyses feedback or data and then uses this information to amend or change the intervention. The researcher then starts the process again. While Whitehead (1985) has outlined the process of action research as being carried out by an individual teacher,

Kemmis and McTaggart (1992) see every stage of the action research process as inherently collaborative. The nature of my research is collaborative throughout (as explained in the collaboration section of the methodology).

Cohen, Manion and Morrison (2007: 307-308) outline an eight point model of action research that I have used to guide my research process. The first six stages outline the planning process: (1) the researcher must identify a problem that is important to their routine teaching practice; (2) the researcher discusses their ideas with other professionals and formulates a research proposal; (3) the researcher reviews relevant literature on the topic or issue being investigated; (4) in light of the literature, the researcher may change or refine the research problem; (5) the researcher selects the research methods and processes; (6) the researcher selects the evaluation methods that will be used for the study. The final stages are: (7) carrying out the intervention and (8) analysing and interpreting the data, evaluating the project and sharing the conclusions and findings.

## Research Methods

I decided that I would need to gather both qualitative and quantitative data in order to evaluate my intervention. As Cohen, Manion and Morrison (2007: 321) point out: 'Where measurement is sought then a quantitative approach is required; where rich and personal data are sought, then a word-based qualitative approach might be more suitable'. I wanted both types of data, to be used for different purposes. One of my aims was to identify patterns, and possible changes, in students' attitudes towards intelligence, learning and attainment before and after the intervention, and I decided that quantitative data would be most useful to investigate trends within the year group; as Cohen, Manion and Morrison

describe, quantitative methods enable: 'patterns to be observed and comparisons to be made' (2007: 321). However, it was clear that, for the majority of the data, qualitative data would be the most suitable and useful. I aimed to gain a more detailed understanding of students' thoughts and feelings about issues such as intelligence, learning and attainment and their experience of the intervention; I also hoped to gain detailed feedback from the teachers involved in the study. With these aims in mind, I decided to use a combination of questionnaires and semi-structured group interviews to gather my data.

Before the intervention, I choose to use the following research methods:

- A questionnaire, given to all Year 10 students, with a combination of open and closed questions. The purpose of this questionnaire was to gather data about the students' attitudes towards learning, attainment and intelligence before the intervention took place.
- A semi-structured group interview with four students (one student from each form in the year group). This data would provide me with more detailed information about the students' opinions on learning, attainment and intelligence.

After the intervention, I choose to use the following research methods:

- A second questionnaire, given to all Year 10 students, using a combination of open and closed questions. The purpose of this questionnaire was to gather data about the students' opinions and attitudes after the intervention, to enable trends and comparisons to be made with the data from the first questionnaire, and to evaluate the efficacy of the scheme of work.

- A second semi-structured group interview with the same four students, in order to gather detailed data about the students' opinions and attitudes after the intervention. This data would enable me to make comparisons with the responses in the first group interview, and would also be used to evaluate the efficacy of the scheme of work.
- A questionnaire using open questions, to be completed by the teachers who collaborated with me during the intervention, to evaluate the efficacy of the scheme of work and outline possible improvements.

## Questionnaires

When formulating my questions, I chose to use and adapt a scale developed by Dweck and colleagues, which is included in *Self-Theories* (2000). The questions use a Likert scale to capture the respondents' views about intelligence. The use of closed questions in my questionnaires provided several advantages. They enabled me to generate quantitative data which I could use to identify trends and patterns in the students' responses. I also chose to repeat the first 5 questions of questionnaire 1 at the beginning of questionnaire 2, so that I could make comparisons between the students' responses before and after the intervention.

However, as Oppenheim (1992: 115) points out, closed questions do not allow respondents to add any extra detail or qualifying remarks to their answers; if the questions give respondents categories to choose from, the respondents have to choose the answers that are the best fit for their opinions. Additionally, Kristjansson (2008) has criticised these types of questions for encouraging respondents to give polarised responses.

To decrease the impact of some of these disadvantages, I also chose to include open questions on the questionnaire, which enabled me to gain more detailed insight into the respondents' beliefs and assumptions. Open questions give respondents the opportunity to give any answer that they wish and to choose the level of detail that they include. However, as Cohen point out, (2007: 322) they also have disadvantages: the answers given may not align with what the researcher wishes to find out; they take more time to complete and therefore may be left blank by the respondent, and the more detailed data is not as readily easy to use to identify trends and make comparisons as quantitative data.

## Group Interviews

Watts and Ebutt (1987) have outlined the advantages of using group interviews for educational research. The use of group interviews gives the students the opportunity to give more detailed responses that develop though discussion with other students. Students are able to discuss and debate a range of different opinions. Arksey and Knight (1999: 76) point out that the opinions and suggestions put forward by the interviewees can prompt others in the group to give a fuller account of the research topic. This factor is particularly useful for me, as all four students took part in the intervention, but in different classes and with different teachers, so the group discussion enabled them to compare and contrast their experiences of the different sessions. An additional advantage of using group interviews is that students are more likely to feel confident and at ease when their peers are present. Eder and Fingerson (2003: 34) point out that there is a power dynamic that must be taken into account when adults interview students because the adult has more status. Interviewing a group of students together can help to make the situation less threatening and more enjoyable.

However, there are also potential disadvantages and challenges that may need managing when group interviews are used. Arksey and Knight (1999: 76) argue that tensions may arise between interviewees during the course of the interview and that some interviewees may hold back opinions that go against the consensus, leading to a lack of validity in the data. Additionally, some students may be more forthcoming than others, and so may dominate the direction and content of the interview. It is the role of the interviewer to make sure that all of the respondents feel confident and comfortable enough to express their true opinions and feelings. As the students' Head of Year, I felt well-placed to make the interview enjoyable, non-threatening and to manage the students' responses, making sure that they all had the opportunity to speak and take part.

In order to ensure that I gathered relevant and useful data from the interviews, I chose use a series of open questions to direct the interviews (see appendix 3 and appendix 5) and decided to use follow up questions to clarify students' answers and to draw out more detail from them. As Cohen, Manion and Morrison (2007) point out, this provides a number of advantages, including giving the respondents freedom to say whatever they choose, giving the interviewer the opportunity to clarify any unclear points and allowing the interviewer to more clearly establish the respondents' true feelings.

## The Pilot Study

Before embarking on the research, I decided to carry out pilot study with a group of seven Year 11 students. As Oppenheim (1992: 48) points out, the pilot questionnaire should be exactly as the final questionnaire will appear, including the font and method of delivery. I was able to trial the first questionnaire in this way, but the Year 11 students could not

complete all of the second questionnaire, as they were not involved in the intervention. However, they were able to review the questions and instructions on the second questionnaire and give feedback about their clarity. They also reviewed the questions and topics planned for use in both group interviews. Cohen, Manion and Morrison (2007: 341) describe a problem with issuing questionnaires: 'different respondents interpret the same words differently'. Asking the Year 11 students to review my research tools allowed me to clarify the wording of my questions in an attempt to minimise or eliminate any misunderstandings.

## Methods of Data Analysis: The Group Interviews

The process that I used to analyse the data from the two group interviews, and to draw out meaning from the transcribed data, was strongly influenced by the twelve stages outlined by Miles and Huberman (1994). I began by reading the transcripts several times and counting the frequency with which particular words and themes appeared, using coding to identify important words and themes on the transcript. I then used clustering to group the respondents' points into categories, while also taking care to differentiate between ideas, avoiding grouping different points in the same category. When this process was complete, I was able to see patterns and make connections between variables.

In order to present the data from the group interviews, I used a table format outlined by Butler et al. (2004). Each of the key subjects that were discussed in the interview are represented by a code; each code is set out on a horizontal line in the table. Each respondent is represented by a column and the transcript line of the interview is shown every time a respondent mentioned a key subject.

## Methods of Data Analysis: The Questionnaires

In order to clearly summarise the quantitative data from my questionnaires, I chose to use tables showing the percentages of students that gave a particular response and the number of students that the percentage represents. The repetition of certain questions between the first and second questionnaire slowed clear comparisons to be between students' views before and after the intervention.

I chose to use a network analysis to analyse the qualitative responses from the questionnaires. This method of data analysis was the most appropriate for both the questionnaires given to teachers, which contained only qualitative questions, and for the qualitative responses from the students. As Bliss, Monk and Ogborn (1983) point out, a useful network analysis must be valid, reliable clear, complete and consistent. It should also be relatively straightforward to explain to others. After reading through the qualitative answers several times, I was able to rank the ideas contained in the responses by the frequency with which they were cited. This allowed me to see which ideas were considered to be the most important by the students and also allowed me to see patterns in their responses. To clearly present this data, I used tables with the groupings used for student responses as headings, and some examples of student responses quoted underneath (see appendix 4 and appendix 6).

## Ethical Considerations

When conducting research in the school setting, there are many ethical issues that must be taken into consideration. Firstly, as Cohen, Manion and Morrison (2007) point out, the

respondents must be given free choice about whether or not to take part. Additionally, the researcher must ensure that they have informed consent from the respondents before issuing the questionnaire. To ensure that the procedures around the issuing of the questionnaires were ethical, the students were given the option of whether to complete them. The questionnaire included an explanatory introduction, giving information about the purpose of the questionnaire and guaranteeing the anonymity of the respondents (see appendix 3 and 5).

Sudman and Bradburn (1982) highlight that care must be taken if a questionnaire is used to investigate sensitive issues. Although, on the surface, the questions that I asked students did not seem to be of a sensitive nature, as Cohen, Manion and Morrison (2007) point out, the researcher may not realise which issues are sensitive topics for the respondents. It is possible that questions about the nature of intelligence could be sensitive for some students; the option not to complete the questionnaire was helpful here, as was the presence of the form tutors, who supervised the questionnaires, and could give support or advice if needed.

The questionnaire designed for the form tutors also raised ethical considerations. The form tutors were given comprehensive information about the research beforehand (appendix 1), and were given time to consider whether they wished to take part in the project. Written consent was obtained before the research began and the tutors have been anonymised throughout the project.

Ethical issues also had to be carefully considered in the planning of the group interviews. Cohen, Manion and Morrison (2007: 382) identify three main areas of ethical issues involved in interviewing: 'informed consent, confidentiality and the consequences of the interviews'. In order to obtain informed consent, I gave both the students and their parents a comprehensive explanation of the research, with time for them to ask any questions that they may have and to consider whether they wished to take part. Written consent was obtained from students and their parents (appendix 1). Again, the students were anonymised and were given the option of opting out of the research at any time, without explanation or incurring any penalty.

To minimise the chance of there being any negative consequences from the interview, I selected the four students very carefully, in collaboration with their form tutors, using our knowledge of the students to identify confident students who we felt would be unfazed by the research process and who would enjoy taking part.

A final issues that had to be carefully considered in the planning of the research was that of timing and workload for the participants. Knowing the busy timetables and schedules of the tutors, it was essential that this project did not become a burden that caused stress by adding to their workload. I was able to manage this issue in the following ways: (1) the scheme of work was planned for them, with all of the resources printed and given to them (2) the intervention was delivered at times when the tutors would be with their forms anyway, during PSHCE lessons and morning registrations. Therefore, this did not create any extra work for them. (3) Tutors were given the option of completing the questionnaires in a

tutor team meeting, thereby not taking up their spare time (although many chose to take it away with them).

Additionally, it was important not to cause any stress for students or to make their workload difficult. However, this was not an issue as all of the sessions and research took place during the course of the normal school day.

## Collaboration

Collaboration with other teachers in the school has been an integral part of my research process. The participation of the form tutors was essential in enabling the scheme of work to be used with all students in the year group, something that would have been impossible for me to achieve if I had been working in isolation. In order to prepare the form tutors for their role in the project, I gave an explanation of the research and the scheme of work in a tutor team meeting at the end of term 3. This also gave the form tutors the opportunity to review the scheme of work and collaborate with me by making suggestions for improvement, so that I could make changes and amendments before we used the scheme of work throughout term 4.

After the tutors had used the scheme of work with their form groups, they reviewed the mindset module and completed a questionnaire to feed into my evaluation of the intervention. My line manager, who had not been involved in delivering the scheme of work, also reviewed the lesson plans and the resources and completed the questionnaire. Gaining a range of opinions and responses to the scheme of work greatly enriched the

evaluation of the scheme of work and helped with thought provoking improvements that can be made in the future (appendix 6).

I have also found that the project has led to some unplanned, but very rewarding, collaboration with other teachers within the school. As result of my work on mindsets, I was invited to give presentation at an INSET session to a group of teachers, prompting some interesting discussions. Following this session, I shared the scheme of work with the Head of Sixth Form, and some of the information and activities in the scheme of work were adapted for use with Year 12 on their induction day in term 6. I have also agreed with the headteacher to take two more INSET sessions (each an hour long) on the topic of mindsets next academic year.

## Research Findings

1. What were the students' pre-existing attitudes towards intelligence, effort and failure (their pre-existing mindsets)?

Student attitudes towards intelligence

The data collected from questionnaire 1 shows that students in Year 10 held a range of views about the nature of intelligence (appendix 4: questions 1-5). 69% of students either strongly disagreed or disagreed with the statement that intelligence cannot be changed and 31% either agreed or strongly agreed. When asked to explain their answer, fifty-three students described intelligence as malleable, something that can be changed through effort and learning. A further five students agreed that intelligence is malleable, but emphasised the role that environmental factors have on an individual's intelligence. Of the 31% of students who saw intelligence as a fixed entity, twenty-three students understood intelligence to be genetic, and three students described intelligence as a fixed and unchanging entity. These findings show that the students do fall into two broad categories in their understanding of intelligence: some see intelligence as malleable and some see intelligence as fixed, which is consistent with Dweck's theory of the two mindsets (2000). However, it should be taken into account that these responses could have been affected by the questions used, which were taken from Dweck's Self-Theories (2000); Kristjansson (2008: 225) has argued that such questions prompt students to give 'exaggeratedly divisive answers'. However, I aimed to decrease the impact of this disadvantage through my inclusion of open questions the questionnaires; this allowed students to explain their answers in more detail and in their own words, thereby giving them the opportunity to express any ambiguities in their opinions.

The data also shows that, before the intervention took place, the majority of students leaned towards an incremental theory of intelligence. 73% of students agreed that you can always substantially change your intelligence and no students in the year group strongly disagreed with this statement (appendix 4: question 3). The majority of students saw talent as something that could be learned, rather than something that is innate (appendix 4: questions 4 and 5).

Comments made by students during the group interview shed some interesting light on these views. When asked whether individuals are born with a certain level of intelligence, they showed a preference for growth mindset views; they placed emphasis on the idea that intelligence can be changed (appendix 4: interview transcript, lines 30-33 and 62-64). However, they also acknowledged that individuals are born with different aptitudes (lines 34-38) and they stressed the importance of the environment on shaping an individual's intelligence. One student described the influence of being in a selective school as helping the students to stay intelligent because the environment is focused on academic achievement (lines 46-49).

The preference that the majority of students showed towards the growth mindset perspective is consistent with Ahmavaara and Houston's (2007) findings; they found slightly higher levels of incremental theories of intelligence among students attending selective schools than those attending non-selective schools. Dweck and Leggett (1998) found that girls were more likely to hold an entity view of intelligence than boys, but Ahmavaara and Houston (2007) found no link between gender and theory of intelligence. All of the students

in my study are female, but the majority showed a preference for growth mindset thinking before the intervention took place.

Student attitudes towards effort

92% of students in the year group agreed that effort is the key to progress and improvement (appendix 4: question 7). This is consistent with Dweck's theory that individuals with an incremental view of intelligence have a more positive view of effort than those with an entity theory (2000). When explaining why they agreed that hard work leads to improvement, the most common reason, given by 62 students, was that practice and effort naturally result in improvement (appendix 4: question 8). Examples of typical responses are given below.

'If you keep doing something over and over again, you will eventually become better at it than you were before'.

'Because you are putting in the effort and there will always be a result'.

Three students saw effort as an indicator of dedication, which they felt would lead to success. Twelve students accepted that effort leads to improvement up to a certain point, but also emphasised that an individual's attainment is limited by natural ability:

'Up to a certain point, I think that if you work hard at something then you will get better, not necessarily by very much but you will improve'.

A minority of students (7) disagreed with the statement and emphasised factors beyond an individual's control that may affect their achievements: 'Sometimes you're just naturally bad at things'.

In the group interview, the students similarly placed a lot of emphasis on the importance of effort, particularly the importance of repeated practice to improve performance and attainment (appendix 4: interview transcript, lines 85-89). They saw effort as linked to a natural affiliation for an activity: if you are naturally good at something then you will pursue it and continue to make a concerted effort with that activity (lines 98-105).

Sorich and Dweck (1999) found that students with an entity theory of intelligence avoided effort, which they saw as a sign of low ability. 29% of students agreed with the statement that truly smart people do not have to work hard (appendix 4: question 6), showing that a significant number of students do not see effort as equally necessary for everyone. However, the students in the group interview disagreed with this statement, and emphasised the importance of hard work in order for an individual to become intelligent and remain intelligent (appendix 4: interview transcript, lines 145-152, 157-160). They agreed that effort was a positive thing rather than an indicator of low ability and described a range of benefits that stem from effort, aside from improved academic performance, such as improving your personality, developing your communication skills (lines 165-166), increasing positivity, making friends and being seen as more trustworthy (lines 179-183). These responses show that the majority of students see effort positively, and understand the benefits of making an effort, but many also see natural ability as playing an important part in achievement. This suggests that students could benefit from an intervention

showing that an individual's potential is 'unknowable' (Dweck, 2012: 7). However, this must be treated with care, so as not to mislead students into believing that effort is unequivocally positive. As Dweck has pointed out (2000, 2014) effort should be expended in pursuit of learning goals, and must be combined with effective learning strategies in order to result in positive outcomes.

Student attitudes towards moving outside of the comfort zone

The questionnaire data shows that the majority of students (72%) were willing to move out of their comfort zone in order to try new things (appendix 4: question 9). This finding is consistent with Dweck's theory that students with an incremental theory of intelligence are more likely to take on challenges and work outside of their comfort zone (2012). When asked to explain their response to this question (appendix 4: question 10) students cited a range of reasons for being willing to try new things. Twenty six students described the excitement and interest associated with trying new things; twenty said that it was a good opportunity for personal development and learning more about themselves, and fifteen emphasised that this was an effective way to gain more knowledge and skills. Some of the responses suggest real relish and enjoyment of challenge, which is consistent with Dweck's description of growth mindset students who enjoy being pushed and taking on difficult tasks (2012). Some example responses are quoted below:

'I love a challenge'.

I, personally, enjoy trying new things as I think it helps to develop my character and make me a more interesting and confident person'.

The students in the group interview also described themselves as willing and happy to move outside of their comfort zone (appendix 4: interview transcript, lines 190-191; 208-209) and they described many benefits associated with doing so, including finding new activities to enjoy, making friends and finding new activities that they might be good at (lines 194-198; 223-224).

However, they acknowledged that moving outside of the comfort zone is something that some other students in the year group find to be difficult. They described students who fear leaving their comfort zone due to concerns about being wrong, not being the best and failing (appendix 4: interview transcript, lines 202, 232-234). This is consistent with the 28% of students who agreed that they found trying new things stressful and avoided it. When explaining the reasons for their answer (appendix 4: question 10) ten students described feelings of unease associated with leaving the comfort zone; seven students cited a fear of making mistakes; two students described frequently experiencing anxiety; two students found meeting new people to be anxiety inducing, and two students found it difficult to adapt to change. Elliott and Dweck (1988) have argued that a fear of leaving the comfort zone can stem from an entity theory of intelligence, leading students to pursue performance goals rather than learning goals. My findings suggest that a significant number of students in the year group would benefit from an intervention that moved them towards an incremental theory of intelligence; this may help students to focus on the learning process rather than focusing on the evaluation of their performance, and therefore they may be more willing to move outside of their comfort zone in order to make progress.

Student attitudes towards labelling

In the group interview, the students described the fear of negative labelling and the perceptions of others as a key reason why students were often too wary to leave their comfort zone (appendix 4: interview transcript, lines 261-265; 268-270; 271-280; 284-286). This provides evidence that an intervention could be beneficial for these students: research by Steele and Aronson (1995) and Dweck (2012) has shown that adopting an incremental view of intelligence can arm students against the negative effects of labelling, as the belief that character and intelligence can be developed leads individuals to understand that they cannot be labelled as innately and unalterably inferior.

Student attitudes towards criticism

Data from the questionnaire shows that 89% of students (appendix 4: question 11) appreciate feedback about their performance. However, the student responses to question 12 (appendix 4) show that there are polarised views within the year group about the nature of feedback. 18% of students agreed that they often get angry or upset when given feedback telling them that they need to improve, and 82% disagreed. When asked to explain their answers to this question (appendix 4: question 13), fifty students described feedback as motivating and helpful for improvement, and nineteen students felt that negative feedback could be upsetting, but they still understood it to be useful. In contrast, twelve students saw negative feedback as indicative of poor performance and three students took it be a personal attack.

In the group interview, students described teacher feedback as very important, emphasising that feedback must be constructive rather than critical (appendix 4: lines 337-339). They

described feeling great sensitivity to teacher feedback (lines 304-317; 319-320). They were very aware of the phrasing and tone of such feedback and stressed the importance of teachers avoiding any kind of personal negative judgement (lines 321-325). They also described thinking that teachers were trying to 'sugar coat' feedback that in reality targeted specific individuals in front of the rest of the class (lines 340-349).

The importance of praise and criticism has been emphasised throughout Dweck's research. Mueller and Dweck (1998) found that praising students for their intelligence was detrimental to their motivation and led them to pursue performance goals rather than learning goals. Kamins and Dweck (1999) found that person praise or criticism caused kindergarten children to adopt a more helpless response when faced with failure. My data shows that a significant number of students are very sensitive to criticism that they take to be directed towards them as a whole, or that publically singles them out as in need of improvement; such criticism may lead them to pursue performance goals and avoid leaving their comfort zone. It is possible that guiding students towards adopting an incremental view of intelligence may help to increase their resilience in the face of negative feedback, in addition to helping them to embrace criticism as helpful for their learning.

Student attitudes towards setbacks and failure

In the group interview, the students acknowledged that failure can be a positive thing, and can be used for further learning (appendix 4: interview transcript, lines 361-366). This is consistent with the broadly growth mindset views that the students showed throughout the interview; they showed a 'mastery oriented' response towards failure (Diener and Dweck, 1978: 460). However, they described other students within the year group who have great

difficulty with the idea of failure (lines 227-234). They described students who have never failed before and therefore develop a dread of being wrong (lines 235-245).

These descriptions of students' reactions to failure are consistent with Dweck and Reppucci's (1973: 116) description of the 'helpless' response to failure that stems from an entity theory of intelligence, namely a loss of confidence in ability and a tendency to give up. Dweck and Leggett (1998) found that girls were more likely than boys to show a helpless response when faced with setback or failure. Students with this view of failure may benefit from an intervention designed to teach the importance of grit and resilience. However, some caution must be exercised her, as Janoff-Bulman and Brickman (1981) have pointed out, endless perseverance in the face of failure is not always beneficial, particularly if the task is genuinely beyond the capabilities of the student. The key focus here must be to show students that failure is not a sign of 'serious personal inadequacy' (Dweck, 2000: 13).

## 2. What impact did the intervention have?

At the end of term 4, after the intervention had taken place, I gave students a second questionnaire, in which I repeated five key questions from the first questionnaire, to identify any changing patterns in student attitudes. The data indicates that, following the intervention, there was a shift in attitudes amongst students towards a growth mindset, as shown in the table below.

| | Before the intervention | After the intervention |
|---|---|---|
| Number of students who disagreed or strongly disagreed that intelligence is something people are born with that cannot be changed. | 69% | 91% |
| Number of students who agreed or strongly agreed with the statement that intelligence can always be changed. | 73% | 94% |
| Number of students who agreed or strongly agreed with the statement that hard work improves ability. | 92% | 100% |
| Number of students who disagreed or strongly disagreed with the statement that trying new things is stressful and something they avoid. | 72% | 82% |
| Number of students who agreed with the statement that they appreciate feedback from parents, coaches and teachers. | 89% | 98% |

When asked if they felt that the intervention had affected their views about the learning process, the majority of students agreed that the intervention had had an impact: 19% agreed that the intervention had affected their views; 61% agreed that it had affected their views to a certain extent, and 20% said that it had not affected their views (appendix 6: question 6).

The students who said that the intervention had changed their views about learning cited four main ways that it had affected them: by helping them to adopt a growth mindset (6 students); helping them to become more resilient (4 students); changing their views of

effort (3 students), and changing their perspective about the nature of intelligence (3 responses). Students who said that the intervention had changed their views to a certain extent, also cited four main ways that it had changed them: by helping them to adopt a growth mindset (22 students); changing their view of intelligence (10 students); by changing their view of effort and leaving their comfort zone (10 responses), and by making them more resilient (9 responses).

A selection of student responses from the questionnaire are quoted below:

'It helped me to maintain a growth mindset'.

'It has helped me to change how I think about learning and helped me to improve how I learn'.

'It has affected the way I react to criticism; I appreciate it more'.

'It has made me more positive in terms of receiving feedback and making mistakes. It has really made me reflect on my actions to learning and has been incredibly useful'.

'It has changed my view about what it means to be intelligent'.

'I have decided I should change the way that I look at work given to me; I want to welcome challenges rather than avoid them'.

'It has made me work harder to achieve better results'.

These findings are supported by the feedback given by students in the second group interview. Although these students had shown a preference for growth mindset views before the intervention, they described the intervention as having strengthened and clarified their views about the importance of effort in bringing about mastery and high attainment (appendix 6, interview transcript, lines 176-178; 180-185; 187-188). One

student describes other students in her class who she believes underwent a shift in mindset following the intervention (appendix 6, interview transcript, lines 189-193).

In the second group interview, the students also agreed that the intervention had changed their behaviour. They described making higher levels of effort (appendix 6: interview transcript, lines 198-201); showing greater resilience after a setback (lines 208-213); feeling more in control of their learning (lines 225-300) and being more willing to embrace challenge rather than choosing tasks that they will find easy (lines 219-223).
Although a shift in attitude can be observed from the data, it is important to bear in mind that it is not possible to see how long-lasting these effects will be. This issue was highlighted by a teacher on the questionnaire (appendix 6: network analysis of teacher questionnaire, question 12).

'There is a lot of information to take in and there is a danger that while students will understand the ideas and their relevance while they are covering the sessions, it is possible that they will then forget the importance of this work unless it is revisited. For example, if they set themselves targets in registration session 2, it would be useful to plan in a follow up to revisit those targets and see if they have achieved them and discuss the difference it has made to them'.

The importance of revisiting the work was emphasised by another teacher who described how the efficacy of the activities decreased when students believed there would not be any follow up: 'SMART target setting not engaged with that well as they were assuming it would not be followed up' (appendix 6: network analysis of teacher questionnaire, question 6).

Although recap activities were included at several points in the scheme of work, only a small number of students cited these as particularly useful: five students cited this for the session on adopting a growth mindset, and three for the session on effort, (appendix 6: questions 10 and 12). However, the students did cite this as useful in the group interview (appendix 6: interview transcript, lines 125-126). The teachers seemed to place more value on the use of recap activities to reinforce the students' learning: two teachers cited the recap in the adopting a growth mindset session as useful and one teacher felt that the link between the session on effort and the previous sessions was effective (appendix 6: network analysis of teacher questionnaire, questions 3 and 5). This could be because the teachers were more mindful about the impact of the intervention, whereas the students may not have felt concerned about potentially forgetting the content of the sessions. It is not possible to assess how long lasting the effects of the intervention may have been. Donohoe, Topping and Hannah (2012) found that after an intervention using Dweck's Brainology computer programme, students showed a short term change in attitude but this did not last. On the other hand, Yeager and Walton (2011) argue that even brief interventions can have long lasting positive impact because they target core beliefs that, when changed, can set students on a different trajectory.

Although some students did report a shift in perspective following the intervention, it was not equally successful for all students in the year group; 20% of students gave feedback saying that the intervention had not changed their views. Student responses explaining why can be found in appendix 6, question 7. Three of these students said that they already held growth mindset views before the intervention took place, which links with Rienzo, Rolfe and

Wilkinson's (2015) study, in which they suggest that the impact of their intervention may have been diluted by the schools already conveying mindset theory before the intervention; the pre-existing attitudes of the students can decrease the impact of an intervention. Three students felt that mindset theory, as it had been presented to them, was too simplistic. The implications of this will be discussed in the following section of the research findings. Eleven students rejected the idea that mindset theory was beneficial; some example quotations are given below:

'It hasn't affected my views because I still strongly believe that a fixed mindset is not a negative thing'.
'It has not affected my views as I don't like the idea of a growth mindset'.
'It has not, it was an absolute waste of my time'.

Dweck (2012) gives several reasons why it can be difficult for individuals to move away from a fixed mindset. Firstly, some students may derive their sense of self-worth or even superiority from the belief that they are innately better than others. This can lead to feelings of entitlement that could be difficult to renounce. Additionally, admitting the value of effort can lead those with a fixed mindset to doubt their ability, while also potentially removing low effort as an excuse for future failures. Such factors may have played a part in some students' refusal to accept growth mindset ideas. However, my research has also highlighted key ways in which the efficacy of the scheme of work could be improved, thereby increasing the likelihood of moving more students towards adopting a growth mindset. Ways to improve the scheme of work as discussed in the next section of the research findings.

3. How can the efficacy of the intervention be improved for use with future cohorts?

No suggestions for improvement

Overall, the intervention was well-received by the students. As we have seen, the intervention was successful in bringing about a general shift amongst students towards accepting and adopting growth mindset ideas. As shown in appendix 6, a significant number of students did not have any suggestions from improvement for the sessions (18 for the PSHCE lesson, 75 for the session on adopting a growth mindset, 62 for the session on effort, 78 for the session on resilience and 68 for the session on labelling and feedback. Many made positive comments such as: 'None- as I really enjoyed the lesson and learned a lot from it too' and, 'None- as I loved the lesson' (appendix 6: questions 9 and 13). However, it cannot be concluded that all students who suggested no improvements fully enjoyed the sessions; some of the responses may have been a result of apathy or a lack of ideas about what could be done to bring about improvement. Generally, the teachers were positive about the sessions: two teachers had no suggestions for improvement for the PSHCE lesson, four for the session on adopting a growth mindset, two for the session on effort and none of the teachers gave any suggestions for improvement for the session on failure (appendix 6: questions 2, 4, 6 and 8).

The subject matter / lesson content

The content of the sessions was seen by the teachers involved in the study as relevant and useful for our students. Several teachers also stressed that the subject matter was

particularly important for students in our specific school context, who they felt struggled with issues related to mindset theory (appendix 6: questions 5 and 7):

'This is a particularly relevant task for our students who do not like tasking risks and are much happier working within their comfort zone'.
'This was a really well targeted lesson as students at this school do not like failure and do not yet see it as part of a journey towards being able to fulfil their potential'.

In the second group interview, the students agreed that the intervention had successfully taught them about the concepts of malleable intelligence, and growth and fixed mindsets (appendix 6: lines 3-7, 11-14). This is consistent with the feedback on the student questionnaires; many students found the subject matter and content of the sessions to be very useful for their learning. Forty students found that explicitly learning about mindset theory was the most useful aspect of the PSHCE lesson (appendix 6: question 8). Students particularly valued learning about scientific basis for mindset theory; twelve students specifically cited this as useful for their learning on the questionnaire. The students in the group interview also emphasised the importance of learning about the scientific basis for the theory, which they felt made the content easier to grasp (appendix 6: interview transcript, lines 6-7) and which proved to them the value of the theory (lines 11-18). On the questionnaire, high numbers of students showed that they found the content of the follow-up session to be useful and relevant (appendix 6: questions 10, 12, 14, 16).

These findings seem to be consistent with Dweck's argument that explicitly learning about the mindsets, the malleability of the brain and the importance of effort is helpful in moving

students towards adopting a growth mindset (2012). Several researchers have successfully employed direct methods in their research to this end, for example, Aronson, Fried and Good (2002); Blackwell, Trzesniewski and Dweck (2007), and Paunesku et al. (2015). However, other researchers have tried the strategy of explicitly teaching mindset theory and have not found this to successfully change student attitudes, for example, Rienzo, Rolfe and Wilkinson (2015) and Donohoe, Topping and Hannah (2012). Donohoe, Topping and Hannah (2012) found that the Brainology programme used for their intervention did not have a lasting effect on the students' perspectives. This could also be the case for my own intervention; I was unable to measure whether the effects of the intervention would be long-lasting.

The use of real life examples

One strategy that students found to be effective in helping them to understand mindset theory was the use of examples from real life, of people who had adopted growth mindsets. This was effective in aiding the students' learning and increasing their motivation. Twelve students cited this as an effective part of the PSHCE lesson, 21 for the effort session, and 33 for the session on resilience and failure (appendix 6: questions 8, 12 and 14). In the group interview, students agreed that the use of real life examples helped them to understand and appreciate mindset theory (appendix 6: interview transcript, lines 113-122). The teachers also noted that the students enjoyed learning about real life examples of people who had adopted growth mindsets, as one teacher noted after the PSHCE lesson:

'The case studies of individuals from business, sport, entertainment etc. particularly worked well for both students and me – made it easy to equate the theoretical ideas to real life situations' (appendix 6: network analysis of teacher questionnaire, question 1).

Three teachers cited the use of real life examples as a useful feature of the session on effort. One teacher suggested that the examples could be further improved if British individuals were used so that they would be even more recognisable to the students (appendix 6: network analysis of teacher questionnaire, question 2).

<u>The fluid and complex nature of mindsets</u>

A significant number of students felt that the efficacy of the intervention could be improved by placing more emphasis on the fluidity and complexity of mindsets. As previously mentioned, three students (see appendix 6: question 7) felt that the intervention had not had any impact on them because they found the binary nature of the mindsets to be unconvincing:

'I feel it was too cut and dry and therefore it did not benefit me'.
'I believe that a person does not have a certain type of mindset but just changes. I think that it would be wrong to class people differently into two different mindsets'.

When asked for feedback for improving the PSHCE session, twenty six students thought that the nature of the mindsets had been presented to them in a way that was too simplistic (appendix 6: question 9). This was also discussed by the students in the group interview,

who suggested that the mindsets should be presented as more fluid and complex than they had been in the PSHCE lesson (appendix 6: interview transcript, lines 68-73).

The view that mindset theory was too simplistic to be valuable led some students to reject the theory. Some students, who perhaps felt that they fell into the fixed mindset category, also felt negatively judged by what they perceived to be the binary division of the two mindsets. In the group interview, the students described how other students in the class became defensive when they felt that fixed mindsets were judged to be negative (appendix 6, interview transcript, lines 94-97). This is also shown through comments on the questionnaire such as those quoted below (appendix 6: question 9):

'Towards the beginning, the fixed mindset was portrayed in an extremely negative way and many of us students felt quite defensive about the way we learn as we were continuously being told that it was 'wrong' or 'bad.' This could have been handled in a better way, and we should have been educated on how to improve it as quickly as possible, instead of waiting a couple of days until we started the sessions in registration'.

'Don't portray a fixed mindset as such a negative thing. It can hold a person back but it was portrayed very negatively in the powerpoint. I think this made the people in our class with fixed mindsets quite flustered as they thought there was something wrong with them'.

These criticisms link to Kristjansson's argument that Dweck's theory is unconvincing due to the 'strict dichotomies' of the two mindsets; this was felt by some of the students participating in the intervention (2008: 225). Dweck has explained that she uses this clear division 'for the sake of simplicity' (2012: 47), however, in this case the theory seemed over-

simplistic and therefore unconvincing to a proportion of students. Clearly this needs to be changed before the scheme of work is used with future cohorts. As discussed in the literature review, the most convincing theories of intelligence are those which acknowledge the complex relationship between genes, environment, education and intelligence (Stobart, 2014; Dweck, 2012). It may have been more effective to discuss this complex relationship with students, for example by giving them evidence for different views and encouraging debate, thereby allowing them to come to their own conclusions about the nature of intelligence.

Another improvement that could be made, suggested by the data, is that an increased number of stealthy methods could be used to convey mindset theory to students. Yeager and Walton (2011) argue that stealthy methods can be the most effective to convey mindset, as these methods do not convey to students that there is a problem with them or with their thought processes that could lead to resistance or feelings of inferiority. The original scheme of work may be overly didactic, although there is some difference of opinion here between the teachers and the students involved in the intervention. Overall, the teachers praised the range of activities in the scheme of work (appendix 6: questions 1, 7):

'The lesson contained a variety of different learning styles, but also provided the opportunity for a lot of information to be grasped by the students in just an hour'.
''Materials were easily accessed and current students enjoyed the tasks and engaged well with them'.

However, Yeager and Walton (2011: 283) have pointed out that a successful intervention should 'begin with a precise understanding of the students' subjective experiences in school'. We must examine the intervention from the students' perspective, and a significant number of students gave feedback saying that the sessions should be made more interactive. When asked for suggestions to improve the scheme of work, 15 students suggested more interactive activities for the PSHCE lesson, 7 for the session on effort and 4 for the session on labelling and feedback (appendix 6: questions 9, 13 and 17). Some typical responses from the questionnaire are quoted below:

'Make the sessions more interactive so that the students aren't just listening to a teacher read off the whiteboard and being told what to think, include more pair or group work'.
'Games that tested our different mindsets, this would make the lessons more fun and effective for those with a fixed mindset'.

In the future, the scheme of work should be altered to allow students to discover aspects of mindset theory themselves, rather than emphasis being placed throughout the scheme of work on teacher explanations. Although the intervention included a writing activity, (appendix 2: follow-up session 3, lesson resources, powerpoint slides) which was based on the writing activities used by Aronson, Fried and Good (2002) and Paunesku et al. (2015), more stealthy activities such as this one should have been used throughout the scheme of work to increase the students' level of engagement. Good, Aronson and Inzlicht (2003) successfully used a range of stealthy teaching strategies to successfully convey growth mindset to students.

The use of discussion and debate

The importance of giving ownership of the intervention to the students is supported by the feedback that students gave emphasising the value that they placed on being able to express their own opinions and to debate ideas during the sessions. This was clear throughout their feedback: class discussions were cited by students as useful for their learning for every session of the intervention and, when asked to suggest improvements 7 cited more discussion for the PSHCE lesson, and two students for the session on effort (appendix 6: questions 9 and 13).

The teachers similarly noted that the sessions prompted useful discussion, particularly for the sessions on labelling and on failure: 'The subject matter struck a chord with students and they enjoyed discussing this issue' (appendix 6, network analysis of teacher questionnaire: questions 7 and 8). In the group interview, the students felt that sessions with more class discussion had been more successful (appendix 6, interview transcript, lines 132-135). Again, this shows that allowing students to take ownership of the subject matter and to contribute and express their own opinions is beneficial for their motivation and learning.

Another area for improvement that emerges from the data is the need for strategies to be given to help students to adopt a growth mindset early in the scheme of work. Generally, the teachers felt that the strategies given to help students to adopt a growth mindset were effective (appendix 6: network analysis of teacher questionnaire, question 3). However, the feedback from students shows that introducing these strategies earlier in the intervention would be useful in showing that mindsets are fluid and changeable. This would also show

students how to make the change from a fixed to growth mindset, making them feel empowered rather than judged. In the original scheme of work, it was not until the first follow up session that students were given strategies to take control of their mindset. When giving feedback on the questionnaires, four students thought that the PSHCE lesson should include information about how to change their mindset, three wanted more guidance on how to move outside of their comfort zone and two thought that more guidance on how to adopt a growth mindset would be useful (appendix 6: questions 9, 13, 11). This was also highlighted in the group interview, when one student suggested that more emphasis should be given to the fact that students can change their mindset (appendix 6: transcript of interview, lines 86-88). Dweck's theory has been criticised by Kristjansson (2008) for a lack of detail about how a shift in mindset occurs; it is clear from my data that students must be armed with a range of strategies enabling them to change mindset, in order to feel empowered and positive about taking on a growth mindset.

Training Teachers

Research has shown that individual teachers play a significant role in bringing about the success of an intervention. Several researchers, such as Gollwitzer and Schaal (2001) and Yeager and Walton (2011), have argued that teachers who have an incremental view of intelligence are more likely to successfully convey growth mindset to students. Other factors are also significant here, such as the teacher's level of success with behaviour management and the value that the teacher places on the intervention (Yeager and Walton, 2011).

As previously discussed, the scheme of work and resources for this intervention were planned in advance and given to teachers, which should have ensured some level of consistency in the experiences of the students. However, the data shows that student responses to the intervention varied between different classes.

6.Has the Mindset work that you have completed this term affected your views about the learning process?

| Yes | To a certain extent | No |
|---|---|---|
| 19% (16) | 61% (51) | 20% (17) |

Results to question 6 shown by class

| A | | | B | | | C | | | D | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | To a Certain Extent | No | Yes | To a Certain Extent | No | Yes | To a Certain Extent | No | Yes | To a Certain Extent | No |
| 5% (4) | 19% (16) | 1% (1) | 10% (8) | 15% (13) | 0% (0) | 1% (1) | 7% (6) | 17% (14) | 4% (3) | 19% (16) | 2% (2) |

Of the 20% of students who felt that the mindset intervention had not affected their views, 17% were in the same class. This could be due to a number of possible factors. In the group interview, the student from class C described being asked to deliver that session herself, something that she took as an indication of a lack of engagement from the teacher (appendix 6: interview transcript, lines 57-62). This is certainly understandable, given the time pressures and workload teachers have to manage, as well as the relatively short time that we had as a team to discuss and review mindset theory before the intervention. Such feedback suggests that sufficient time needs to be allocated to allow teachers to fully grasp and engage with mindset theory, to improve the efficacy of interventions. The importance

of this was also highlighted by two teachers on the questionnaire (appendix 6: network analysis of teacher questionnaire, question 12).

Providing thorough training for teachers in mindset theory has other benefits for the intervention. Firstly, it could increase the efficacy of the lesson resources, in particular the powerpoint. As one teacher noted on the questionnaire: 'Lots of information on the powerpoint could encourage reading it off the screen. Is there any way around this?' (appendix 6: network analysis of teacher questionnaire, question 2). The powerpoints were designed as a lesson aid for teachers, providing all of the information that they needed to deliver the intervention. More thorough training for teachers would result in less information being needed on the powerpoint slides, something that could improve the students' experiences of the sessions. Students gave conflicting feedback about this issue. Eight students cited the powerpoint as useful for the session on effort (appendix 6: question 12). However, two students said that the PSHCE lesson would be more useful with less information on the powerpoint (appendix 6: question 9). Students in the group interview also felt that the powerpoint would be more effective if less information was included (appendix 6: interview transcript, lines 80-84).

<u>Timing</u>

18.When is the most effective time to learn about Mindsets?

| A combination of PSHCE and registration sessions | Only in PSHCE | Only in registration |
|---|---|---|
| 12% (10) | 83% (70) | 5% (4) |

One theme that emerged throughout the feedback about the scheme of work was that hour long PSHCE lessons were more suitable for delivering the intervention than the morning registration sessions that last for 25 minutes. The original intention behind having an hour long session followed by four shorter follow-up sessions was to introduce the key concepts of mindsets in the PSHCE lesson and to use the shorter sessions to refresh the students' knowledge and further develop their understanding of the topic. It was also intended that the morning sessions would inspire students to use growth mindset thinking throughout the day, for example, the session on effort and moving outside of the comfort zone encouraged students to challenge themselves during the course of that day (appendix 2: registration session 2, resources, powerpoint slides).

A minority of students (12%) found this to be effective, for example one student gave feedback saying: 'We definitely needed the PSHCE lessons as we could not have learnt the definitions and what different mindsets are in a registration lesson. However the follow up activities took up a good amount of time for registration. They were also a good start to the day and inspired us to have a growth mindset throughout the day' (appendix 6: question 19). However, it is apparent that, for the majority of students, the morning registrations seemed too short for the sessions and were frequently subject to interruptions, which reduced the efficacy of the intervention. 83% of students thought that the intervention would be more effective if it was taught only through PSHCE lessons. Additionally, when asked how to improve the session on labelling and feedback, nine students answered that the timing should be changed, and six students said the same for the session on resilience and failure (appendix 6: questions 15 and 17). When explaining why only PSHCE lessons

should be used, thirty five students said that focus was improved in PSHCE lessons, and another thirty five thought that giving the sessions more time would improve their impact.

This finding is supported by the feedback from the teachers, who found that it could be a rush to cover all of the material (appendix 6: network analysis of teacher questionnaire, questions 4 and 6). In order to further improve the efficacy of the scheme of work, longer sessions should be used to allow enough time for students to fully absorb and reflect on the content.

## Conclusions

When planning my research, I set out to answer three key questions. Firstly, I wished to assess the students' attitudes towards intelligence, effort and failure before the intervention (their pre-existing mindsets). I found that the majority of students in the year group adopted growth mindset views, yet a significant number did not and a number of students experienced difficulties consistent with Dweck's theory of a fixed mindset, such as discomfort when moving out the comfort zone, sensitivity to criticism and adopting a helpless response when faced with setbacks or failure. I concluded that an intervention designed to move the students towards a growth mindset should help to consolidate the views of students who have already adopted aspects of this theory, while also helping students with a fixed mindset to change their perspective. Secondly, following the intervention, I set out to assess how far the students' views had changed. I found that there was a general shift in attitude and that students were more likely to adopt growth mindset views after the intervention. However, it is not possible to assess how long lasting these changes will be and there was a small but significant number of students who rejected the

value of mindset theory. Thirdly, I sought to find ways that the efficacy of the intervention could be improved for use with future cohorts. My research has led me to draw the following conclusions:

- When teaching students about mindsets, the complexities of mindset theory must be acknowledged so that students are not deterred by a theory that appears to be overly simplistic. Research shows that mindsets are fluid; individuals switch mindsets according to different contexts and may simultaneously hold opposing mindsets for different areas of their lives. Acknowledging this complexity should help students to apply the theory to their own experiences more realistically and also help to prevent students with a fixed mindset tendencies from feeling negatively judged.
- Strategies enabling students to switch mindsets should be included early in the intervention, so that students feel empowered and motivated to change rather becoming defensive.
- Although explicitly teaching mindset theory can be effective in helping students to adopt a growth mindset, indirect methods should also be used to increase the efficacy of the intervention. This will help to give students ownership over the subject matter and allow them to reach their own conclusions, rather than teaching mindset in an overly didactic way that can lead some students to resist the information.
- Thorough training should be given to teachers involved in delivering mindset interventions, to enable them to fully understand the theory and its benefits. This

should encourage teachers to prioritise the intervention, while also increasing their motivation and confidence with the subject matter.

- Sufficient time must be set aside for the mindset intervention, giving students time to discuss and absorb the concepts at their own pace. Within the context of my school, this means that hour long PSHCE lessons should be used as opposed to morning registration sessions.
- In order to fully assess the success of an intervention, the topic of mindsets needs to be regularly revisited and reinforced, so that it is possible to judge whether lasting effects have resulted from an intervention.

Limitations

When drawing conclusions from my data, it is important to bear in mind the limitations that affect my study. I have carried out an intervention in one school with one cohort of students, so generalisations cannot be made from my findings. As discussed above, the intervention shows a general shift in mindset throughout the year group over the course of one term; we do not know whether this change will be long-lasting.

The use of triangulation was intended go some way towards decreasing the disadvantages associated with my research methods; strengths and weaknesses of my research methods are discussed in more detail in the methodology section. It is important to bear in mind that the students were aware that an intervention was taking place; this knowledge may have affected the validity of my data.

In spite of these considerations, the process of evaluating my teaching practice has been of great value to me and this study has had lasting effects within the wider context of my

school; this project has engaged a range of teachers in mindset theory and prompted further work in other year groups. Going forward, the scheme of work will be amended in light of my research findings and used again, hopefully with increased efficacy for other cohorts. Further research and continuing trials of more strategies will be carried out in the coming years, with the ongoing intention of improving student well-being and attainment.

# References

Ahmavaara, A. and Houston, D, M. (2007) The effects of selective schooling and self-concept on adolescents' academic aspiration: An examination of Dweck's self-theory, in *The British Journal of Educational Psychology*, 77, 3, 613-632.

Ames, C. (1984) Achievement attributions and self-instructions under competitive and individualistic goal structures, in *Journal of Educational Psychology,* 76, 478-487.

Ames, C. and Archer, J. (1998) Achievement goals in the classroom: Students' learning strategies and motivational processes, in *Journal of Educational Psychology,* 80, 260-267.

Andersen, C. (1983) Motivation and performance deficits in interpersonal settings: The effect of attributional style, in *Journal of Personality and Social Psychology,* 45, 1136-1147.

Andrews, G.R. and Debus, R. L. (1978) Persistence and the causal perception of failure: Modifying cognitive attributions, in *Journal of Educational Psychology,* 70, 154-166.

Arksey, H. and Knight, P. (1999) *Interviewing for Social Scientists.* London, Sage.

Aronson, J. and Fried, C. (1998) Reducing stereotype threat and boosting academic achievement of African Americans: The role of conceptions of intelligence. Unpublished manuscript.

Aronson, J., Fried, C and Good, C. (2002) Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence, in *Journal of Experimental Social Psychology,* 38, 113-135.

Bergen, R. (1992) Beliefs about intelligence and achievement-related behaviours. Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.

Blackwell, L. S., Trzesniewski, K, H. and Dweck, C. S (2007) Implicit Theories of Intelligence Predict Achievement Across an Adolescent Transition: A Longitudinal Study and an Intervention, in *Child Development,* 78, January/February, 1, 246 – 263.

Bliss, J., Monk, M. and Ogborn, J. (1983) *Qualitative Data Analysis for Educational Research.* London: Croom Helm.

Brainology: 'You can grow your intelligence'. [Online resource]. Available from: https://www.mindsetworks.com/Free-Resources [Accessed: 3rd January 2016]

Brown, A. L. (1997) Transforming schools into communities of thinking and learning about serious matters, in *American Psychologist,* 52, 399-413.

Burt, C. L. S. (1937) *The Backward Child.* London, University of London Press.

Butler, D.L., Lauscher, H.N., Jarvis-Selinger, S. and Beckingham, B. (2004) 'Collaboration and Self-Regulation, in Teachers' Professional Development'. *Teaching and Teacher Education*, 20, 5, 435-455.

Carol Dweck: 'Telling kids to try harder isn't enough to promote a growth mindset.' (17th July 2014) *Times Educational Supplement.* [Online]. Available from: <https://www.tes.com/news/school-news/tes-professional/carol-dweck-telling-kids-try-harder-isnt-enough-promote-a-growth [Accessed: 25th August 2016].

Ceci, S. J. and Williams, W. M. (1997) Schooling, intelligence and income, in *American Psychologist*, 52, 1051-1058.

Cohen, L., Manion L. and Morrison, K. (2007) *Research Methods in Education.* Sixth Edition. Abingdon. Routledge.

Covington, M. V. (1992) *Making the grade: A self-worth perspective on motivation and school reform*. New York, Cambridge University Press.

Diener, C. I. and Dweck, C. S. (1978) An analysis of learned helplessness: Continuous changes in performance, strategy and achievement cognitions following failure, in *Journal of Personality and Social Psychology*, 36, 451-462.

Diener, C. I. and Dweck, C. S. (1980) An analysis of learned helplessness: (II) The processing of success, in *Journal of Personality and Social Psychology*, 39, 940-952.

Donohoe, C., Topping, K. and Hannah, E. (2012) The impact of an online intervention (Brainology) on the mindset and resiliency of secondary school pupils: A preliminary mixed methods study, in *Educational Psychology,* 32(5), 641-655.

Dupeyrat, C. and Marin, C. (2005) Implicit theories of intelligence, goal orientation, cognitive engagement and achievement: A test of Dweck's model with returning to school adults, in *Contemporary Educational Psychology*, 30, 43-59.

Dweck, C. S. (1975) The role of expectations and attributions in the alleviation of learned helplessness, in *Journal of Personality and Social Psychology,* 31, 674-685.

Dweck, C. S. (2000) *Self-theories: Their Role in Motivation, Personality and Development.* Hove, Psychology Press.

Dweck, C. S. (2012) *Mindset: How you can fulfil your potential*. London, Robinson.

Dweck, C. S. and Leggett, E. L. (1988) A social-cognitive approach to motivation and personality, in *Psychological Review,* 95, 256-273.

Dweck, C. S. and Reppucci, N. D. (1973) Learned helplessness and reinforcement responsibility in children, in *Journal of Personality and Social Psychology,* 25, 109-116.

Eder, D. and Fingerson, L. (2003) Interviewing children and adolescents, in Holstein, J. A. and Gubrium, J. F. (Eds.) *Inside Interviewing: New Lenses, New Concerns.* Thousand Oaks, Sage, 33-53.

Edwards, A. D. and Mercer, N. (1987) *Common Knowledge: The Development of Understanding in the Classroom*. London, Methuen.

Elliott, E. S. and Dweck, C. S. (1988) Goals: An approach to motivation and achievement, in *Journal of personality and Social Psychology,* 54, 5-12.

Eysenck, H. J. (1998) *A New Look Intelligence*. New Jersey, Transaction Publishers.

Farrell, E. and Dweck, C. S. (1985) the role of motivational processes in transfer of learning. Unpublished manuscript.

Flynn, J. (1998) 'IQ gains over time: toward finding the causes' in Neisser, U. (Ed.) *The Rising Curve: Long-Term Gains in IQ and Related Measures.* Washington DC, American Psychological Association, 25-66.

Furnham, A., Chamorro-Premuzic, T. and McDougall, F. (2003) Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance, in *Learning and Individual Differences,* 14, 47-64.

Gollwitzer, P. and Schaal, B. (2001) 'How goals and plans affect action' in Collis, J. and Mesick, S. (Eds.) *Intelligence and Personality.* New York, NJ: Lawrence Erlbaum, 139-161.

Good, C., Aronson, J. and Inzlicht, M. (2003) Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat, in *Journal of Applied Developmental Psychology,* 24, 6, 645-662.

Gorard, S. and Huat See, B. (2013) *Overcoming Disadvantage in Education.* Abingdon, Routledge.

Graham, S. and Gonlon, S. (1991) Motivational influences on cognition: Task involvement, ego involvement, and depth of information processing, in *Journal of Educational Psychology, 83,* 187-194.

Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A.T. and Elliot, A. J. (1997) Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade, in *Journal of Personality and Social Psychology, 73,* 1284-1295.

Henderson, V. and Dweck, C. S. (1990) 'Achievement and motivation in adolescence: A new model and data' in Feldman, S. and Elliott, G. (Eds.) *At the threshold: The developing adolescent.* Cambridge, Harvard University Press.

Hong, Y., Chiu, C., Dweck, C. S. and Lin, D. (1998) A test of implicit theories and self-confidence as predictors of responses to achievement challenges. Unpublished manuscript.

Howard, J. (1995) You can't get there from here: The need for a new logic in education reform, in *Proceedings of the American Academy of Arts and Sciences*, 124, 85-92.

Janoff-Bulman, R. and Brickman, P. (1981) 'Expectations and what people learn from failure' in Feather, N. T. (Ed.) *Expectancy, incentive, and action*, 207-237.

Kamins, M. L. and Dweck, C. S. (1999) Person vs. process praise and criticism: Implications for contingent self-worth and coping, in *Developmental Psychology,* 35, 3, 835-847.

Kemmis, S. and McTaggart, R. (1992) *The Action Research Planner.* Third edition. Geelong, Deakin University Press.

Kristjansson, K. (2008) Education and Self-change, in *Cambridge Journal of Education*, 38, 2, 217-230.

Lee, J. and Wiggins, K. (12th November 2015) Growth mindset theory is 'overplayed' and could be harmful, geneticist warns. *Times Educational Supplement.* [Online]. Available from <https://www.tes.com/news/school-news/breaking-news/growth-mindset-theory-overplayed-and-could-be-harmful-geneticist> [Accessed: 25th August 2016].

Leggett, E. L. and Dweck, C. S. (1986) Individual differences in goals and inference rules: Sources of causal judgments. Unpublished manuscript.

Lessof, C., Ross, A., Brind, R., Bell, E. and Newton, S. (July 2016). *Longitudinal Study of Young People in England cohort 2: health and wellbeing at wave 2.* [Online] Department for Education. Available from: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/540563/LSYPE2_w2_research_report.pdf> [Accessed 28th August 2016]

Licht, B. G. and Dweck, C. S. (1984) Determinants of academic achievement: The interaction of children's achievement orientations with skill area, in *Developmental Psychology,* 20, 628-636.

Midgley, C., Arunkumar, R. and Urdan, T. C. (1996) "If I don't do well tomorrow, there's a reason:" Predictors of adolescents' use of academic self-handicapping strategies, in *Journal of Educational Psychology,* 88, 423-434.

Miles, M. and Huberman, M. (1994) *Qualitative Data Analysis* (Second Edition). Beverly Hills, Sage.

Millar, F. (23rd August 2016). Got a good argument in favour of grammar schools? Bring it on. *The Guardian.* [Online] Available from: https://www.theguardian.com/education/2016/aug/23/argument-for-grammar-schools-selective-education-theresa-may [Accessed 23rd August 2016].

Mueller, C. M. and Dweck, C. S. (1997) Implicit theories of intelligence: Malleability beliefs, definitions, and judgments of intelligence. Unpublished data.

Mueller, C. M. and Dweck, C. S. (1998) Intelligence praise can undermine motivation and performance, in *Journal of Personality and Social Psychology, 75,* 33-52.

O'Brien, T. (26th June 2015) Why Mindsets aren't a magic wand. *Times Educational Supplement.* [Online] Available from <https://www.tes.com/news/tes-archive/tes-publication/why-mindsets-arent-a-magic-wand-2> [Accessed: 25th August 2016].

Oppenheim, A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement.* London, Pinter.

O'Shea, A., Cleary, J. and Breen, S. (2010) 'Exploring the role of confidence, theory of intelligence and goal orientation in determining a student's persistence on mathematical tasks' in Joubert, M. and Andrews, P. (Eds.) *Proceedings of the British congress for mathematics education.* Manchester, BSRLM, 151-158.

Paunesku, D., Walton, G., Romero, C., Smith, E., Yeager, D. and Dweck, C. (2015) Mind-Set Interventions Are a Scalable Treatment for Academic Underachievement, in *Psychological Science,* 26, 6, 784-793.

Pintrich, P. R. and Garcia, T. (1991) 'Student goal orientation and self-regulation in the college classroom' in Maehr, M. L and Pintrich, P. R. (Eds.) *Advances in motivation and achievement.* Greenwich, JaI Press, 7, 371-402.

Pintrich, P. R., McKeachie, W. J. and Lin, Y. (1987) Teaching a course in learning to learn, in *Teaching of Psychology*, 14, 81-86.

Rhodewalt, F. (1994) Conceptions of ability, achievement goals, and individual differences in self-handicapping behaviour: On the application of implicit theories, in *Journal of Personality,* 62, 67-85.

Rienzo, C., Rolfe, H. and Wilkinson, D. (2015) Changing Mindsets. *Education Endowment Foundation.* [Online] Available from:

<https://educationendowmentfoundation.org.uk/projects/portsmouth-university> [Accessed 26 August 2016].

Riley-Smith, B. (6th August 2016). Theresa May to end ban on new grammar schools. *The Telegraph.* [Online] Available from: <http://www.telegraph.co.uk/news/2016/08/06/theresa-may-to-end-ban-on-new-grammar-schools/> [Accessed 6th August 2016].

Schunk, D. H. (1982) Effects of effort attributional feedback on children's perceived self-efficacy and achievement, in *Journal of Educational Psychology,* 74, 548-556.

Sorich, L. and Dweck, C. S. (1999) 'Mastery-oriented thinking' in Snyder, C. R. (Ed.) *Coping.* New York, Oxford University Press.

Steele, C. M. and Aronson, J. (1995) Stereotype threat and the intellectual test performance of African-Americans, in *Journal of Personality and Social Psychology,* 68, 797-811.

Sternberg, R. J. (1999) Intelligence as developing expertise, in *Contemporary Educational Psychology,* 24, 4, 359-375.

Stobart, G. (2014) *The Expert Learner.* Maidenhead, Open University Press.

Sudman, S. and Bradburn, N. M. (1982) *Asking Questions: A Practical Guide to Questionnaire Design.* San Francisco, Jossey-Bass.

Terman, L. M. (1916) *The Measurement of Intelligence: An Explanation of and a Complete Guide for the Use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale.* Cambridge, The Riverside Press.

Times Educational Supplement, [Online] Resources used in scheme of work: <https://www.tes.com/teaching-resources> [Accessed 5th January 2016].

Tucker, W. H. (1997) Re-reconsidering Burt: Beyond a Reasonable Doubt, in *Journal of the History of the Behavioural Sciences,* 33, 2, 145-162.

Watts, M. and Ebbutt, D. (1987) More than the sum of the parts: research methods in group interviewing, in *British Educational Journal,* 13, 1, 25-34.

Whitehead, J. (1985) 'An analysis of an individual's educational development: the basis for personally oriented action research' in Shipman, M. (Ed.) *Educational Research: Principles, Policies and Practices.* Lewes, Falmer, 97-108.

Yeager, D. and Walton, G. (2011) Social-Psychological Interventions in Education: They're Not Magic, in *Review of Educational Research,* 81, 2, 267-301.

Zuber-Skerritt, O. (1996) 'Emancipatory action research for organisational change and management development', in Zuber-Skerritt, O. (Ed.) *New Directions in Action Research.* London, Falmer, 83-105.

Zukerman, M. Kieffer, S.C. and Knee, C.R. (1998) Consequences of self-handicapping effects on coping, academic performance, and adjustment. *Journal of Personality and Social Psychology*, 74, 1619-28.

# Appendices

## Appendix 1: Information, letters and consent forms for participants in the research

Letter to headteacher

**UNIVERSITY OF OXFORD**
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

**Director** Professor Ernesto Macaro

Dear (name of headteacher here)

As you know, I am completing an MSc in Learning and Teaching at the University of Oxford. As part of the third year of this course, I will be completing a dissertation, involving action research in school. My research will be titled ***Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student response***.

I am writing to seek formal permission to conduct the research within school. All research will be conducted with guidelines set down by BERA – the British Educational Research Association and the Ethics Committee of the University of Oxford. In particular, I will ensure that:

- All names and other identifying features of individuals (staff or students) will be anonymised in the final dissertation
- The name and distinguishing features of the school will be anonymised
- Electronic data will be stored securely and confidentially on the school network

My aim is to develop a scheme of work to promote the idea of growth mindsets (using the research of Carol Dweck as a starting point). I will work in collaboration with the Year 10 tutor team, who will deliver the scheme of work through a PSHCE lesson and through activities during morning registration. To gather my data, I will use online questionnaires with Year 10, one before the tutor has used the scheme of work with them and one afterwards. I will also carry out two focus groups with four students to gain more detailed feedback about the scheme of work.

The research will be carried out in school during term 4, from 22nd February 2015 to 24th March 2015. There are no known risks in taking part in this study. This project has been reviewed by, and received ethics clearance through the University of Oxford Central University Research Ethics Committee.

I hope that this research will be of direct benefit to the school as it seeks to evaluate the impact of a scheme of work designed to promote resilience and love of learning amongst our students.

Please contact me if you have queries about my research plan. Alternatively, please contact my supervisor, (name redacted), University of Oxford Department of Education, 15, Norham Gardens, Oxford, OX2 6PY. (01865 274024, and (name redacted)@education.ox.ac.uk)

If you are happy for me to proceed, I would be grateful if you could complete the attached consent form?

Yours sincerely,

(name redacted)

.....

FORMAL PERMISSION TO PROCEED WITH RESEARCH

I agree for the researcher, name redacted, to conduct research in (name of school redacted) from February to March 2015, following the requirements outlined in his letter of.....(date).

Signed..... (Headteacher)

Date.....

## Letter to tutors

**UNIVERSITY OF OXFORD**
DEPARTMENT OF EDUCATION
15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Dear Year 10 tutor,

As know, I am completing an MSc in Learning and Teaching at the University of Oxford. As part of the third year of this course, I will be completing a dissertation, involving action research in school.

I am inviting Year 10 tutors to work collaboratively with me on the research. My research will be titled, ***Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses.*** I will produce a scheme of work for year 10, which I am asking the tutor tem to deliver during one PSHCE lesson, and during five morning registrations. The research will be carried out in school during term 4, from 22nd February 2015 to 24th March 2015.

I will use questionnaires with the year group, before and after the scheme of work, to evaluate the effect that it has on their mindsets. I will also conduct two group interviews, one before and one after the intervention, with four students to gain more detailed feedback about the scheme of work.

I would like to invite you to give me feedback about the scheme of work in tutor team meetings, at any time throughout the process, via e-mail, and in a questionnaire after the scheme of work has been delivered. If you are happy for me to use your comments in my dissertation, please indicate this on the consent form at the end of this letter.

A pseudonym will be used when you are quoted in my dissertation, and no information which could identify you as an individual will be included. The dissertation may be read by colleagues and senior management staff within the school, and a copy will be placed in the Department of Education, Oxford University, for the benefit of future researchers.

There are no known risks in taking part in this study. This project has been reviewed by, and received ethics clearance through the University of Oxford Central University Research Ethics Committee.

All data will be securely stored on the school system in line with the provisions of the Data Protection Act, 1998 and guidance of the University of Oxford for the storage of potentially sensitive information. British Educational Research Association (BERA) guidelines will be followed at all times.

You can, of course, choose whether or not to take part. You can ask questions before making your decision.

If you have any concerns or complaints about the project, please contact my supervisor, (name redacted), University of Oxford Department of Education, 15, Norham Gardens, Oxford, OX2 6PY. (01865 274024, and (name redacted)@education.ox.ac.uk). Alternatively, you can contact me at school.

I hope very much that you wish to participate in this research. If so, please complete and return the attached consent form.

Many thanks in advance,

(Name redacted)

Tutor Consent Form

I give consent for my feedback about the scheme of work, including direct quotations to be used as part of the dissertation (please write your initials in the box).

I have read, understood and consent to the provisions regarding security of my personal data as detailed in the attached letter (please write your initials in the box).

Signed.....

Date.....

Information and consent form for parents and students

***Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses.*** *)*

As you know, I am Head of Year 10; this year I am working towards an Msc in Learning and Teaching at Oxford University. My contact details at university are (e-mail redacted). In term 4 of this academic year, I will be conducting some research, into student mindsets: their attitudes towards learning, challenge and failure. The phrase "growth mindset" refers to the belief that one's qualities can be cultivated through one's efforts and the belief that everyone can change and grow through application and experience. Current educational research (for example, the work of Carol Dweck) shows that students with growth mindsets are more resilient in the face of setbacks and that a growth mindset helps to cultivate a passion for learning. The aim of the study is to promote growth mindsets amongst year 10 students by planning and delivering a scheme of work to be used by tutors with their form groups.

The research aims to answer the following questions:

1) What types of mindsets do students in Year 10 have before the scheme of work is delivered?
2) What impact does the intervention have?
3) How can the efficacy of the scheme of work be improved for use with future cohorts?

I would like to invite your daughter to take part in two group interviews, one before the intervention and one afterwards. The aim of the group interview will be to discuss students' attitudes towards learning, challenge, failure and their beliefs about learning and intelligence. The second group interview will re-visit these topics, while also giving students the opportunity to give feedback about the mindset scheme of work.

- I am inviting your daughter to take part because, as a Year 10 student, she will participate in mindset activities with her form tutor and we feel that she will have useful feedback to give us about the scheme of work.

- Your daughter does not have to take part in the study and you are very welcome to contact me for more information or to ask any questions that you may have before you decide whether your daughter would like to participate.

- If you and your daughter consent to the study, your daughter may withdraw from the study, without penalty at any time and without giving reason, by advising me that she no longer wishes to take part.

**What will happen in the study?**
The study will involve two group interviews (both lasting one hour) with four students from Year 10. The first group interview will be in February 2016 and the second group interview will be in March 2016. The interviews will take place in (location redacted). They will take place at lunchtime, but I will ensure that your daughter has time to eat her lunch before the interview begins.

Your daughter will be asked questions about her beliefs and attitudes towards learning. There are no risks in taking part in this study and no preparation is required for your daughter to take part. If any problems arise before or during the interview, the interview will be rescheduled or abandoned.

**What happens to the research data provided?**
The interview will be audio-recorded. I am seeking consent to use direct quotations from the interview in my research. The data will be transcribed and anonymised, through the use of pseudonyms. Only I will have access to the recording and the data will be stored on a password protected device and will be locked away when not in use. At the end of the project, the audio recording will be deleted.

**Will the research be published?**

The research will be published in a dissertation that will be shared with other members of staff at (name of school redacted). It may also be published in Oxford University archives.

**Contact details**

This project has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee; it has also been reviewed by (name redacted) University of Oxford.

If you have a concern about any aspect of this project, please speak to the relevant researcher or supervisor, (name redacted), +44 (0) 1865 274021, who will do their best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how he/she intends to deal with it. If you remain unhappy or wish to make a formal complaint, please contact the chair of the Research Ethics Committee at the University of Oxford (using the contact details below) who will seek to resolve the matter in a reasonably expeditious manner:

1.1.1. Chair, **Medical Sciences Inter-Divisional Research Ethics Committee**; Email: ethics@medsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD

1.1.2. Chair, **Social Sciences & Humanities Inter-Divisional Research Ethics Committee**; Email: ethics@socsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD

1.1.3. [For applications reviewed by the **Oxford Tropical Research Ethics Committee** (OxTREC), please insert the contact details for the local ethics committee which has reviewed your project]

**What to do next**

If you and your daughter give consent to taking part in the research, please complete the attached consent form.

**Consent Form**

STUDY TITLE**:** ***Promoting growth mindsets in Year 10: developing a scheme of work and evaluating student responses.***

RESEARCHER DETAILS: (redacted)

PURPOSE OF STUDY:

Current educational research (for example, the work of Carol Dweck) shows that students with growth mindsets are more resilient in the face of setbacks and that a growth mindsets helps to cultivate a passion for learning. The aim of the study is to promote growth mindsets amongst year 10 students by planning and delivering a scheme of work to be used by tutors with their form groups.

The research aims to answer the following questions:

1) What are the students' pre-existing mindsets?
2) What impact does the intervention have?
3) How can the efficacy of the scheme of work be improved for use with future cohorts?

Please initial the boxes below, to give written consent for your daughter to take part in this research.

| **Statement** | **Student initials** | **Parent initials** |
|---|---|---|
| I have read the information sheet, and have received satisfactory answers to any questions that I have | | |
| I understand that this project has been reviewed by, and received ethics clearance though, the University of Oxford Central University Research Ethnics Committee | | |
| Both I and my daughter understand that her participation is voluntary and that she is free to withdraw herself or her data at any time, without giving any reason, and without any adverse consequences or academic penalty | | |
| I understand who will have access to any personal data provided | | |

| | | |
|---|---|---|
| I understand how personal data will be stored e.g. according to the Data Protection Act; and what will happen to the data at the end of the project | | |
| I understand how the research will be written up and published | | |
| I understand how to raise concerns or make a complaint | | |
| I consent to the group interview being audio-recorded | | |
| I consent / I give consent for my daughter to take part in the study | | |

**Student signature**

Name of participant _____

Signature _____ Date _____

**Parent / Carer signature**

Name of parent / Carer _____

Signature _____ Date _____

**Researcher signature**

Name of researcher _____ Date _____

Signature _____ Date _____

## Appendix 2: Mindset scheme of work and lesson resources

Mindset: PSHCE Lesson (Thursday 25th February 2016)

| Topic | Lesson Plan | Purpose |
|---|---|---|
| Introducing Mindsets | **Starter Activity**<br>1. Class discussion: are people born with a certain amount of intelligence, or is intelligence something that we develop throughout our lives?<br>2. Look at the slide with students, explaining that research shows that intelligence is something that we develop.<br><br>**Main Activity: how does the brain work?**<br>3. Ask students to think of something that they have learned to do (e.g. riding a bike, using a knife and fork). Ask them to reflect on how they learned to do this.<br><br>4. Show students **the video** about how the brain works and ask them to answer the following questions on **worksheet 1**:<br>a. How and why can a brain be compared to muscle?<br><br>b. What causes neurons in the brain to connect?<br><br>c. What do the diagrams of the two different animal brains show about learning?<br><br>d. How can you develop your brain?<br><br>**Main activity: introducing the mindsets**<br>Use the information on the powerpoint and the **video** of Carol Dweck to explain the two mindsets. Ask students to define the mindsets on **worksheet 2** and to record why our attitudes towards intelligence are so important.<br>Ask students to consider which behaviours might stem from the two different mindsets. They should fill in the table on **worksheet 2**.<br>Use the powerpoint and **worksheet 3** to summarise the two different mindsets and the impact that they can have on our behaviour.<br>This includes the point that many people recognise aspects of both mindsets within themselves and that people can have different mindsets in different areas.<br>Development: examples of growth mindsets | Consider how the brain works and how we learn.<br><br>Understand the concepts of the growth mindset and the fixed mindset.<br>Consider the behaviours that may arise from these different sets of beliefs.<br><br>Apply your learning to real-life examples of mindsets and evaluate how mindsets have an impact on attainment and achievement. |

| | | |
|---|---|---|
| | Show students the conclusions of Benjamin Bloom and his conclusions about intelligence.<br>In pairs, students are given an example **(worksheet 4)** of someone who adopted either a growth mindset or a fixed mindset. They should read through their example and explain to the rest of the class how mindset had an impact on this person.<br>• Mohammad Ali p.83-85<br>• Michael Jordan p.85-86<br>• Babe Ruth p. 86-87<br>• Wilma Rudolph p.87-88<br>• Iacocca p.114-117<br>• Anne Mulcahy p. 131-133<br>**Plenary**<br>Students are given 4 scenarios in which someone adopts a fixed mindset. What advice would they give, to ensure that their friend adopts a growth mindset? | |

PSHCE Lesson 1: Resources (powerpoint slides)




**Learning Objectives:**

- Consider how the brain works and how we learn.
- Understand the concepts of the growth mindset and the fixed mindset. Consider the behaviours that may arise from these different sets of beliefs.
- Apply your learning to real-life examples of mindsets and evaluate how mindsets have an impact on attainment and achievement.

# Intelligence: Nature or Nurture?

Discuss the following question in pairs.

*Are we born with a certain amount of intelligence, or do we develop our intelligence throughout our lives?*

Explain your views.




# What does research into intelligence show?

- It's not nature **or** nurture, genes **or** environment … there's a constant give and take between the two.
- Scientists are learning that people have more capacity for lifelong learning and brain development than they ever thought.
- It is true that each person has a unique genetic endowment. People may start with different temperaments and different aptitudes, but it is clear that experience, training and personal effort take them the rest of the way.
- Robert Sternberg, the present-day guru of intelligence writes that the major factor in whether people achieve expertise is 'is not some fixed prior ability, but purposeful engagement'.
- Researchers have found that it's not always the people who start out the smartest who end up the smartest.

Source: *Mindset*, Dweck (2012: 5)

# How do we learn?

**Think** of one thing *you can do now* that you couldn't always do.

*For example:*
- Riding a bike
- Speaking English
- Using a knife and fork
- Baking
- Reading

**When** did you learn to do it?

**How** did you learn to do it?

*…how did your brain learn to do this? What* **actually** *happened in your head?*

## How does the brain work?

Use the video below to answer the following questions. Record your answers on worksheet number 1.

- How and why can a brain be compared to muscle?
- What causes neurons in the brain to connect?
- What do the diagrams of the two different animal brains show about learning?
- How can you develop your brain?

https://www.youtube.com/watch?v=WtKJrB5rOKs

## How and why can a brain be compared to muscle?

The brain is like a muscle. The more you use it, the stronger it gets. Scientific research can show us how this happens.

Think about weightlifting. When a person lifts weights their muscles get bigger and stronger. If someone was to stop exercising, their muscles would shrink and they would get weaker.

When you learn new things, parts of your brain change and get larger, a lot like muscles do when they exercise.

Source: Brainology Curriculum Guide for Teachers (www.mindsetworks.com)

## What causes neurons in the brain to connect?

Inside the cortex of the brain are billions of tiny nerve cells, called neurons. The nerve cells have branches connecting them to other cells in a complicated network. Communication between these brain cells is what allows us to think and solve problems.

When you learn new things, these tiny connections in the brain actually multiply and get stronger. The more that you challenge your mind to learn, the more your brain cells grow. Then, things that you once found very hard or even impossible to do – like speaking a foreign language or doing algebra – seem to become easy. The result is a stronger, smarter brain.

Source: Brainology Curriculum Guide for Teachers (www.mindsetworks.com)

## What do the diagrams of the two different animal brains show about learning?

Scientists researched animals' brains. They looked at animals who lived in a challenging environment, with other animals and toys to play with, and animals who lived alone in bare cages. While the animals who lived alone just ate and slept all the time, the ones who lived with different toys and other animals were always active. They spent a lot of time figuring out how to use the toys and how to get along with other animals.

These animals had more connections between the nerve cells in their brains. The connections were bigger and stronger too. In fact, their whole brains were about 10% heavier than the brains of the animals who lived alone without toys. The animals who were exercising their brains by playing with toys and each other were also "smarter" – they were better at solving problems and learning new things.

Even old animals got smarter and developed more connections in their brains when they got the chance to play with new toys and other animals. When scientists put very old animals in the cage with younger animals and new toys to explore, their brains also great by about 10%!

Source: Brainology Curriculum Guide for Teachers (www.mindsetworks.com)

# How can you develop your brain?

Just like weightlifter or a basketball player, to be a brain athlete, you have to exercise and practice. By practising, you make your brain stronger. You also learn skills that let you use your brain in a smarter way – just like a basketball player learns new moves.

But many people miss out on the chance to grow a stronger brain because they think they can't do it or that it's too hard. It does take work, just like becoming stronger physically or becoming a better ball player does. Sometimes it even hurts! But when you feel yourself get better and stronger, all the work is worth it.

Source: Brainology Curriculum Guide for Teachers (www.mindsetworks.com)

## How do our beliefs about intelligence affect us?

- Educational research shows that the view you adopt for yourself profoundly affects the way that you lead your life.
- It can determine whether you become the person you want to be and whether you accomplish the things you value.



Source: *Mindset*, Dweck (2012: 6)

# The Two Mindsets

The term "mindset" refers to a set of beliefs or attitudes held by someone.

The idea of **fixed** and **growth** mindsets comes from the research of Carol Dweck (Professor of Psychology at Stanford University).

Watch the video clip and define the two mindsets on your handout (worksheet 2).

https://www.youtube.com/watch?v=26h02O1B3eo



The **Fixed Mindset** means that you believe that your qualities are carved in stone.

The **Growth Mindset** is based on the belief that you basic qualities are things you can cultivate through your efforts. Although people may differ in every which way – in their initial talents and aptitudes, interests, or temperaments – everyone can change and grow through application and experience.



Source: *Mindset*, Dweck (2012:6)

# Activity

Think carefully about the two mindsets.

The mindset that you have will lead you to adopt certain types of behaviour. Look at your worksheet and match the behaviour to the mindset.

Discuss with a partner and fill in your table (worksheet 2).

**Class discussion**

Explain how and why have you reached your conclusions.

## Activity

Read through worksheet 3 and consider how the two mindsets create different attitudes towards learning and challenge.




Source: *Mindset*, Dweck (2012:245)

## Are mindsets really that straightforward?

Some people may recognise aspects of both mindsets within themselves. Many people have elements of both mindsets.

Other people may have different mindsets in different areas. For example, someone may think that their artistic skills are fixed but that their maths skills can be developed. Someone else may believe that their personality if fixed but that their literacy skills can be developed.

Source: *Mindset*, Dweck (2012: 47)

## The growth mindset: talent is made not born!

Benjamin Bloom, an eminent educational researcher, studied 120 outstanding achievers. They were concert pianists, sculptors, Olympic swimmers, world-class tennis players, mathematicians, and research neurologists.

Most were not that remarkable as children and didn't show clear talent before their training began in earnest.

Even by early adolescence, you usually couldn't predict their future accomplishment from their current ability. Only their continued motivation and commitment, along with their network of support, took them to the top.

Source: *Mindset*, Dweck (2012: 65)

Bloom concluded, "After forty years of intensive research on school learning in the United States as well as abroad, my major conclusion is: What any person in the world can learn, almost all persons can learn, if provided with the appropriate prior and current conditions of learning".

He's not counting the 2-3 % of children who have severe learning impediments and he's not counting the top 1-2% of children at the other extreme. He is counting every body else!

Just because some people can do something with little or no training, it doesn't mean that others can't do it (and sometimes do it even better) with training.

This is so important because many, many people with the fixed mindset think that someone's early performance tells you all you need to know about their talent and their future.

Source: *Mindset*, Dweck (2012: 65-66)

## The Growth Mindset: Talent is made NOT born!

In pairs, you will be given an excerpt from *Mindset* (2012) by Carol Dweck (handout 4).

Read it carefully. Does your sheet give an example of the fixed mindset or the growth mindset? What does it show about the impact of mindset on achievement?

(i) Mohammad Ali p.83-85
(ii) Michael Jordan p.85-86
(iii) Babe Ruth p. 86-87
(iv) Wilma Rudolph p.87-88
(v) Iacocca p.114-117
(vi) Anne Mulcahy p. 131-133

Feedback your ideas to the rest of the class.

# Plenary

**In pairs choose one of the scenarios below. Discuss how you would respond to make sure your friend adopted a growth mindset.**

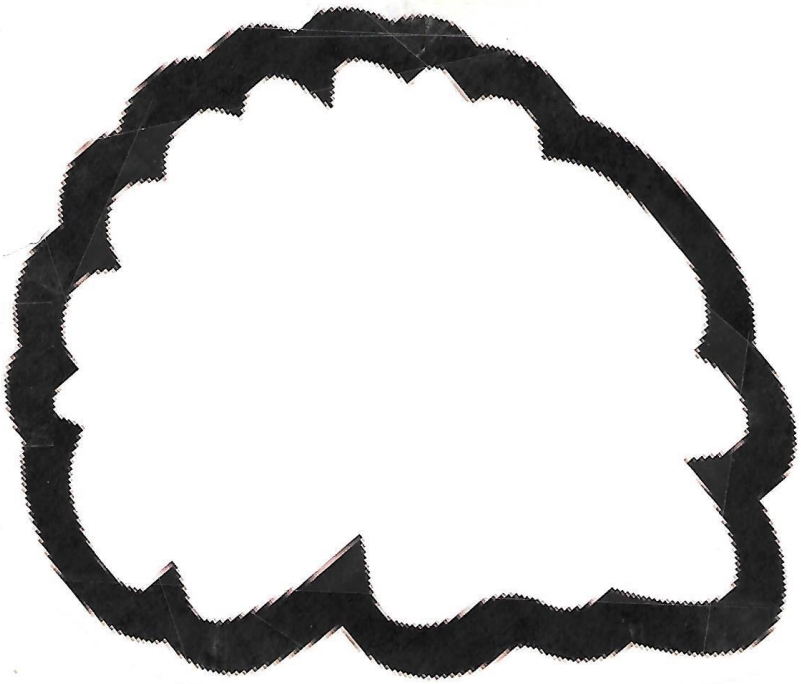
- Your friend realises their work isn't quite right. They scribble all over their work and close their book.
- Someone in the playground says to your friend "You're rubbish at netball".
- Someone in the class says they have finished their work. Your friend gives up because they are still working on the first question.
- A friend tells you: "I can't learn to speak French because I'm stupid".

**What would you say?**

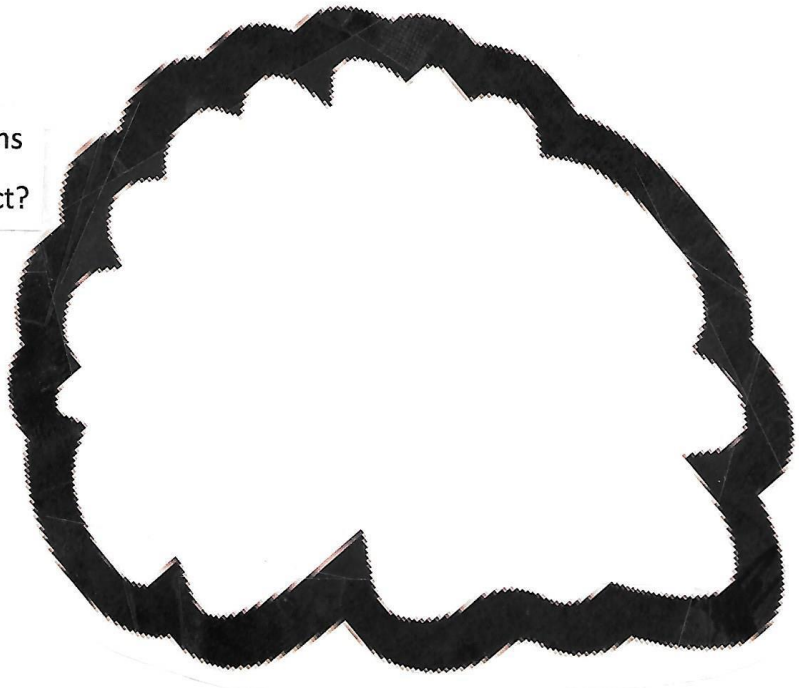
Resource adapted from *Times Educational Supplement*: Mindset Form Tutor Lessons activity

# Worksheet 1: How does the brain work?

1.How and why can a brain be compared to a muscle?

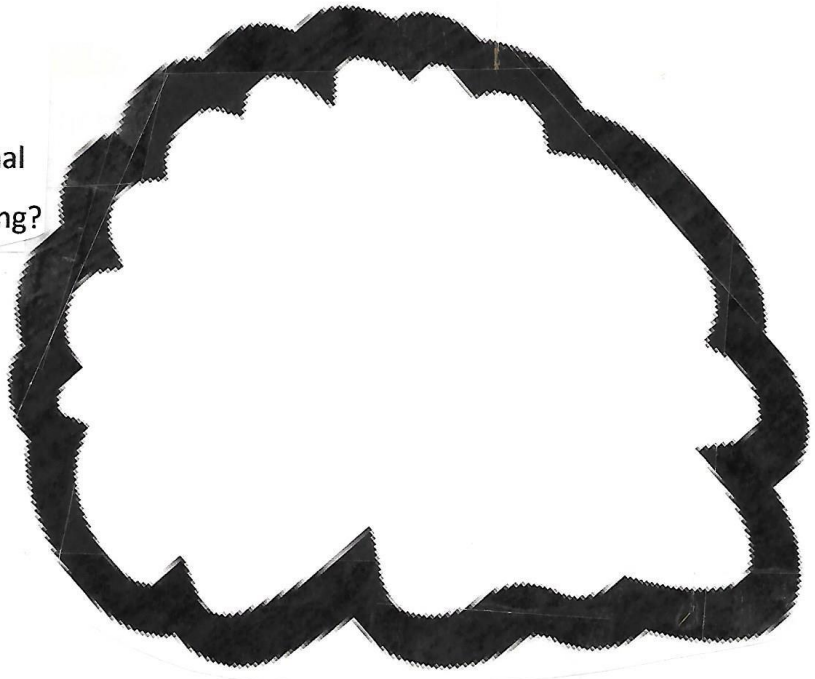


2.What causes neurons in the brain to connect?

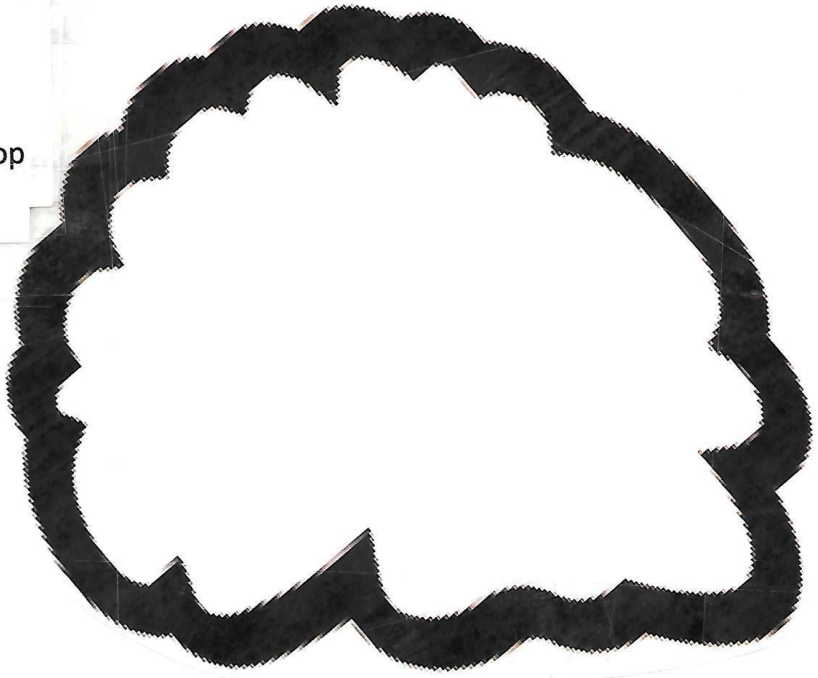


PSHCE Lesson 1: Worksheet 1 (second side)

3. What do the diagrams of the two different animal brains show about learning?



4.How can you develop your brain?



# Mindsets: Worksheet 2

Why are our beliefs about intelligence important?

Define the term “fixed mindset”

Define the term “growth mindset”

PSHCE Lesson 1: Worksheet 3

The mindset that you have will lead you to adopt certain types of behaviour. Match the behaviour to the mindset in the table below.

| **Belief / Behaviour** | **Fixed or Growth Mindset?** |
|---|---|
| Believing that effort makes you smart and talented. | |
| Feeling an urgency to prove that you are smart and talented over and over again. | |
| Believing that a low grade means that you are not smart or talented. | |
| Rejecting new challenges because it may expose a weakness. | |
| Losing interest in new challenges if they become too difficult. | |
| Believing that one test or one evaluation can measure you forever. | |
| Feeling passionate about learning. | |
| Feeling that you must never appear to be deficient in intelligence. | |
| Believing that smart and talented people do not need to put in effort. | |
| Focusing on improvement and on overcoming deficiencies. | |
| Seeking friends who boost your self-esteem. | |
| Seek out experiences that will stretch you. | |
| Understanding that it takes time for people to realise their potential. | |
| Seeing effort as a bad thing. | |
| Sticking with difficult tasks, even when they are not going well. | |

Resource adapted from *Times Educational Supplement*: Mindset Activity

PSHCE Lesson 1: Worksheet 4

# The Mindsets: Two different worlds

**The Fixed Mindset**

Believing your qualities are carved in stone – the *fixed mindset* – creates an urgency to prove yourself over and over. If you have only a certain amount of intelligence, a certain personality, and a certain moral character – well, then you'd better prove that you have a healthy dose of them. It simply wouldn't do to look or feel deficient in these most basic characteristics.

When you enter a mindset, you enter a new world. In one world – the world of fixed traits – success if about proving you're smart or talented. Validating yourself.

In one world, failure is about having a setback. Getting a bad grade. Losing a tournament. Getting fired. Getting rejected. It means you're not smart of talented. In one world, effort is a bad thing. It, like failure, means you're not smart of talented. If you were, you wouldn't need effort.

The fixed mindset can turn people into non-learners because they may choose to reject opportunities to learn because it may "expose their deficiencies". They prioritise feeling smart "in the short run" over their learning and development.

When do people with the fixed mindset thrive? When things are safely within their grasp. If things get too challenging – when they're not feeling smart or talented – they lose interest.

People with the fixed mindset feel intelligent when they "are flawless right away".

For people with a fixed mindset "It's so crucial to be perfect right now… It's because one test – or one evaluation – can measure your forever". The idea that one evaluation can measure your forever is what creates the urgency for those with the fixed mindset. That's why they must succeed perfectly and immediately. Who can afford the luxury of trying to grow when everything is on the line right now?

**The Growth Mindset**

You can see how the belief that cherished qualities can be developed creates a passion for learning. Why waste time proving over and over how great you are, when you could be getting better? Why hide deficiencies instead of overcoming them? Why look for friends or partners who will just shore up your self-esteem instead of ones who will also challenge you to grow? And why seek out the tried and true, instead of experiences that will stretch you? The passion for stretching yourself and sticking to it, even (or especially) when It's not going well, is the hallmark of the growth mindset. This is the mindset that allows people to thrive during some of the most challenging times in their lives.

In the other world, failure is about not growing. Not reaching for the things you value. It means you're not fulfilling your potential.

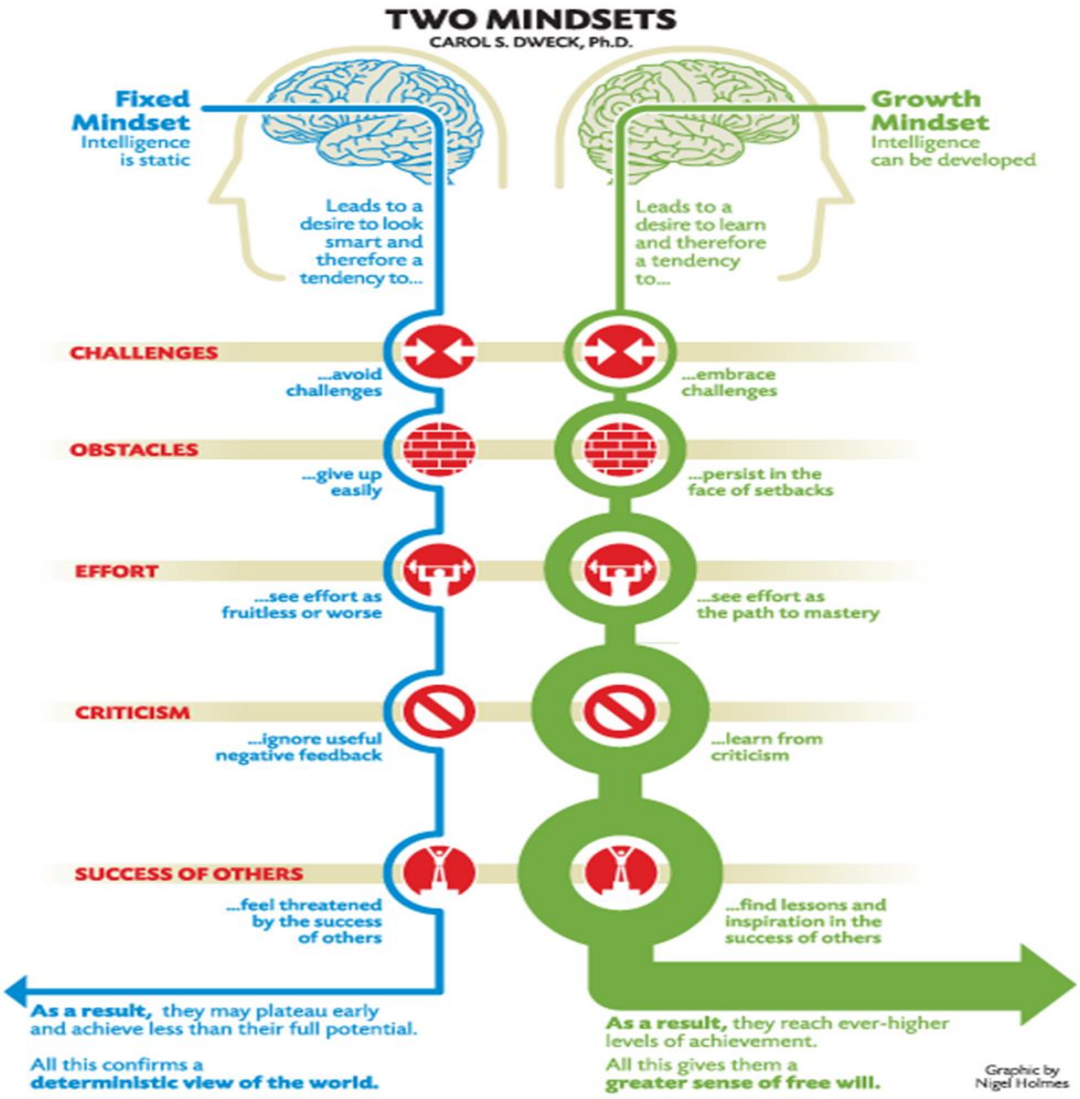
In one world, effort is a bad thing. It, like failure, means you're not smart of talented. If you were, you wouldn't need effort. In the other world, effort is what *makes* you smart or talented.

People with the growth mindset thrive when they're stretching themselves.

For people with the growth mindset, "It's not about immediate perfection. It's about learning something over time: confronting a challenge and making progress". People with the growth mindset know that it takes time for potential to flower.

Source: Dweck, *Mindset* (2012: 15)

PSHCE Lesson 1: Worksheet 4 (second side)



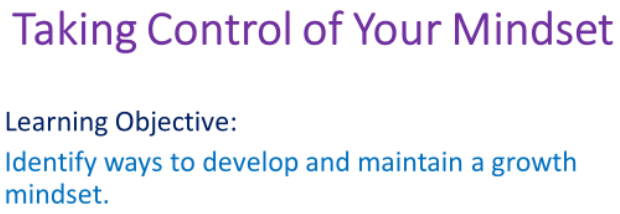

Source: Dweck, *Mindset* (2012: 245)

Registration Session 1: Lesson Plan

**Registration Activity 1: Adopting a Growth Mindset**

| Topic | Lesson Plan | Purpose |
|---|---|---|
| How to change your mindset. | **Recap Activity**<br>Use the true / false quiz and the slide describing the mindsets to refresh students' understanding of mindsets from their PSHCE lesson.<br><br>**Main activity**<br>Explain to students that they can control their mindset.<br><br>Students brainstorm in pairs strategies that they can use to adopt a growth mindset. Discuss their suggestions as a class.<br><br>Show them the six suggested strategies on the whiteboard.<br>Give them hand-out (number 5) to read and keep in their PSHCE folders. | Arm students with strategies that they can use to adopt a growth mindset. |

Registration Session 1: Resources (powerpoint slides)



# Recap Quiz: True or False?




1. Someone with a growth mindset is more likely to fear obstacles.
2. People with fixed mindsets believe that intelligence can be developed.
3. People with growth mindsets see effort as essential to learning.
4. "I cant do this". "I'm a failure". These are growth mindset thoughts.
5. Our brains are malleable.
6. Choosing activities that we find easy is not really beneficial to our learning.
7. People with fixed mindsets may decide not to take up certain opportunities in case they do not excel immediately.
8. People with growth mindsets embrace challenges.
9. Educational research shows that talent is made not born.
10. People with fixed mindsets are more likely to persist in the face of setbacks.

Resource adapted from *Times Educational Supplement*: Mindset Activity

# Answers...

Resource adapted from *Times Educational Supplement*: Mindset Activity

1. Someone with a growth mindset is more likely to fear obstacles. ✗
2. People with fixed mindsets believe that intelligence can be developed. ✗
3. People with growth mindsets see effort as essential to learning. ✓
4. "I cant do this". "I'm a failure". These are growth mindset thoughts. ✗
5. Our brains are malleable. ✓
6. Choosing activities that we find easy is extremely beneficial for our learning. ✗
7. People with fixed mindsets may decide not to take up certain opportunities in case they do not excel immediately. ✓
8. People with growth mindsets embrace challenges. ✓
9. Educational research shows that talent is made not born. ✓
10. People with fixed mindsets are more likely to persist in the face of setbacks. ✗

# Mindset Recap...



The **Fixed Mindset** means that you believe that your qualities are carved in stone.

The **Growth Mindset** is based on the belief that you basic qualities are things you can cultivate through your efforts. Although people may differ in every which way – in their initial talents and aptitudes, interests, or temperaments – everyone can change and grow through application and experience.



Source: *Mindset*, Dweck (2012: 6)

## Can I choose my Mindset?

Yes! You have a choice. Mindsets are just beliefs. They're powerful beliefs, but they're just something in your mind, and you can change your mind.



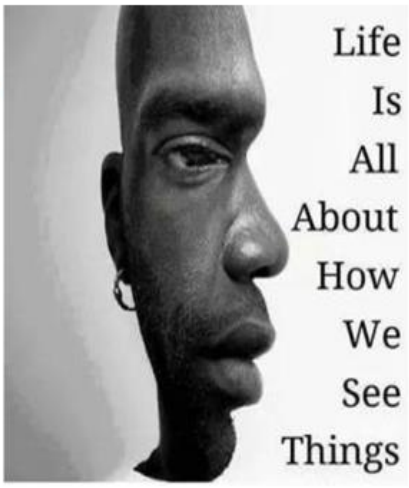




Source: *Mindset*, Dweck (2012: 16)

**Changing your perspective is an important part of changing your mindset.**






### Activity

In pairs, brainstorm all of the strategies that you can think of to change from fixed mindset thinking to growth mindset thinking.

### Class Discussion

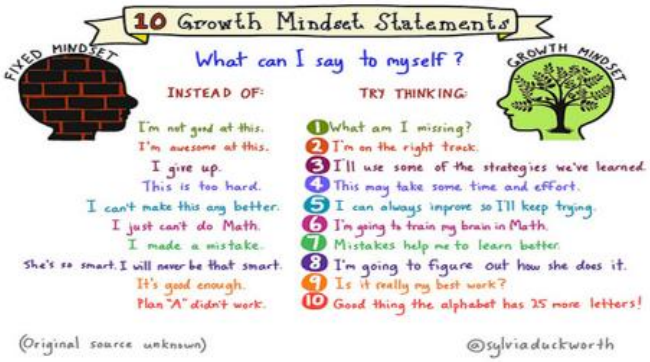
Feedback your ideas with the rest of the class.

# Six strategies to help you to adopt a growth mindset




**Strategy 1: Handout 5**

Pay attention to your internal monologue (the things that you say to yourself) and speak to yourself with a growth mindset voice.




Resource adapted from *Times Educational Supplement*: Mindset Activity

## Strategy 2: Use your study skills!

Source: *Mindset* (Dweck, 2012: 61)

Carol Dweck and her team of educational researchers noticed that students with growth mindsets achieved higher grades than those with fixed mindsets. An important reason for this was the way that they used their study skills.

The fixed mindset students often studied by reading their textbook and class notes (and reading them again if the topic was really hard). They also often tried to memorize everything they could.

The students with a growth mindset had a very different approach. They completely took charge of their learning and motivation. Instead of plunging into unthinking memorisation of the course material, they said: "I looked for themes and underlying principles across lectures", and, "I went over mistakes and underlying principles across lectures". They were studying to learn, not just to pass the test. Because they think in terms of learning, people with the growth mindset are clued in to all the different ways to create learning. This means that they use a variety of study skills and revision methods to help them to make progress.

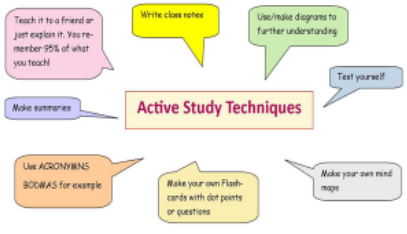



Diagram adapted from *Times Educational Supplement*: Mindset Activity

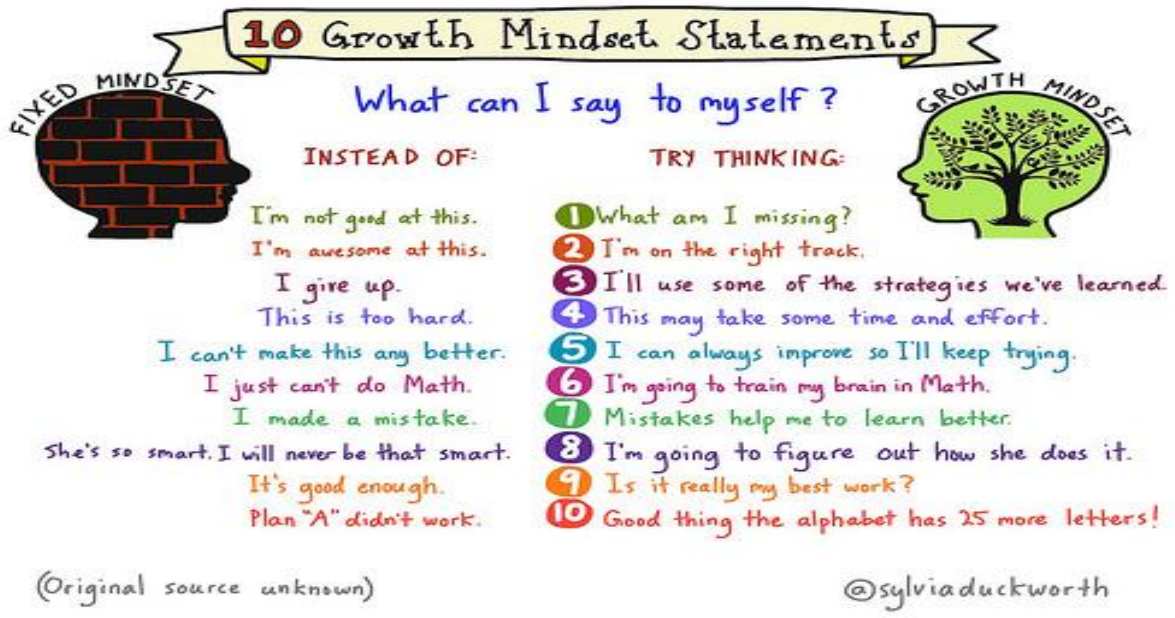
| | |
|---|---|
| **Strategy 3:** | Try out new things and embrace challenges! Don't let fear of failure stop you. |
| **Strategy 4:** | Be resilient: never give up! |
| **Strategy 5:** | If you are unsure about something, ask your teacher. Never be afraid to put your hand up and take part. |
| **Strategy 6:** | Reflect on your learning at the end of each day. Was it a good day? What did you achieve? What did you learn? What will you do tomorrow to build on today's learning? |

Resource adapted from *Times Educational Supplement*: Mindset Activity

[Registration Session 1: Handout 5]

# Mindsets

Pay attention to your internal monologue (the things that you say to yourself) and adopt a growth mindset.

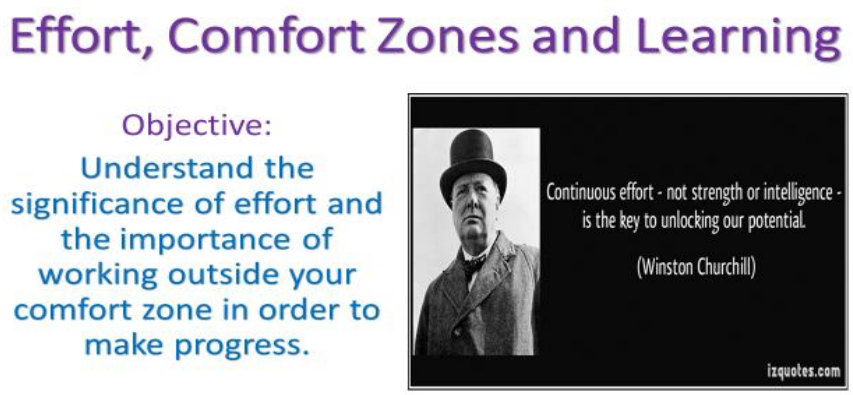


Registration Session 2: Lesson Plan

Registration Session 2: Effort, Comfort Zones and Learning

| Topic | Details | Purpose |
|---|---|---|
| The importance of working outside of your comfort zone in order to make progress. | **Recap Activity**<br>Discuss with students what they learned about the brain in their PSHCE lesson on mindsets and use the information on the powerpoint to clarify the key points.<br><br>**Effort and Comfort Zones**<br>Discuss with students how people with different mindsets see effort differently. Use the powerpoint slide to clarify the key points.<br><br>Watch the video clip in which Will Smith talks about his attitude towards effort.<br>Explain that people with growth mindset thrive when they are working outside of their comfort zones. Look at the examples of Mia Hamm and Christopher Reeve on the powerpoint to illustrate this point.<br><br>**Applying what they have learnt.**<br>Students set themselves a SMART target that will take them outside of their comfort zone and help them to make progress. | Students understand the significance of effort and the importance of working outside your comfort zone in order to make progress. |

Registration Session 2: Resources (powerpoint slides)



**Recap:** What did you learn about effort and the brain in your PSHCE lesson on Mindsets?



## What did we learn about the brain and effort?

**The brain is like a muscle**
The more you use it, the stronger it gets. When you learn new things, parts of your brain change and get larger, a lot like muscles do when they exercise.



**Neurons**

Inside the cortex of the brain are billions of tiny nerve cells, called neurons. The nerve cells have branches connecting them to other cells in a complicated network. Communication between these brain cells is what allows us to think and solve problems. When you learn new things, these tiny connections in the brain actually multiply and get stronger. The more that you challenge your mind to learn, the more your brain cells grow. Then, things that you once found very hard or even impossible to do – like speaking a foreign language or doing algebra – seem to become easy. The result is a stronger, smarter brain.

**How can you develop your brain?**

Just like weightlifter or a basketball player, to be a brain athlete, you have to exercise and practice. By practising, you make your brain stronger. You also learn skills that let you use your brain in a smarter way – just like a basketball player learns new moves.

But many people miss out on the chance to grow a stronger brain because they think they can't do it or that it's too hard. It does take work, just like becoming stronger physically or becoming a better ball player does. Sometimes it even hurts! But when you feel yourself get better and stronger, all the work is worth it.

Source: Brainology Curriculum Guide for Teachers (www.mindsetworks.com)

# Effort and the Mindsets

## Effort and the fixed mindset

People with a fixed mindset thrive when things are safely within their grasp. If things get too challenging – when they're not feeling smart or talented – they lose interest. Part of the fixed mindset is the "either / or" attitude. "Either you have the ability or you expend effort ... Effort is for those who don't have the ability. From the point of view of the fixed mindset, effort is only for people with deficiencies. Effort can reduce you.

Why is effort so terrifying? There are two reasons. One is that in the fixed mindset, great geniuses are not supposed to need it. So just needing it casts a shadow on your ability. The second is that ... it robs you of all your excuses. Without effort, you can always say, "I could have been [fill in the blank]". But once you try, you can't say that anymore.

## Effort and the growth mindset

People with the growth mindset thrive when they're stretching themselves. For people with the growth mindset, "It's not about immediate perfection. It's about learning something over time: confronting a challenge and making progress". People with the growth mindset know that it takes time for potential to flower.

In the growth mindset, it's almost inconceivable to want something badly, to think you have a chance to achieve it, and then do nothing about it. When it happens, the *I could have been* is heartbreaking, not comforting.

Source: *Mindset* (Dweck, 2012: 43)

# Effort and Learning

1) Watch the video clip below, in which Will Smith talks about the importance of effort in his life and career.






https://www.youtube.com/watch?v=IJKIgtCpwvg

# Comfort Zones and Mindsets

In order to really make progress and develop your brain, you need to work outside your comfort zone.

People in a growth mindset don't just seek challenge, they thrive on it. The bigger the challenge, the more they stretch.




# Mia Hamm: working outside the comfort zone



Mia Hamm is a retired American professional soccer player and two time olympic gold medalist and FIFA Women's World Cup winner. Hamm played many years as a forward for the United State's women's national soccer team and held the record international goals, more than any other player, male or female, in the history of soccer, until 2013.

Mia became the greatest female soccer player of all time by constantly challenging herself to work outside her comfort zone and by setting herself challenges.
"All my life I've been playing up, meaning I've challenged myself with players older, bigger, more skilful, more experienced – in short, better than me".



First she played with her older brother.
Then, at ten, she joined the eleven-year-old boys' team.
Then she threw herself into the number one college team in the US.

"Each day I attempted to play up to their level... and I was improving faster than I ever dreamed possible".

Source: *Mindset,* Dweck (2012: 21)

## Christopher Reeve: working outside the comfort zone

Sometimes people with the growth mindset stretch themselves so far that they do the impossible. In 1995, Christopher Reeve, the actor who played Superman, was thrown from a horse. His neck was broken, his spinal cord was severed from his brain, and he was completely paralyzed below the neck. Doctors said that he would never move again.

Reeve started a demanding exercise program that involved moving all parts of his body with the help of electrical stimulation.

Five years later he started to regain movement. He was far from cured but brain scans showed that his brain was once more sending signals to his body and that his body was responding.

Reeve stretched his abilities so far that he changed the entire way that science thinks about the nervous system and its potential for recovery. In doing so he opened a whole new vista for research and a whole new avenue of help for people with spinal cord injuries.



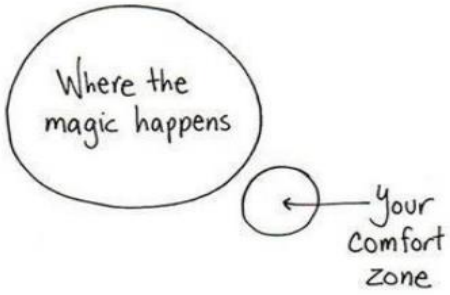
Source: *Mindset*, Dweck (2012: 22)

## Setting Targets

Set yourself a personal target which requires you to work outside of your comfort zone in order to make progress.

Your target must be SMART:

- Specific
- Measurable
- Achievable
- Realistic
- Time bound



Registration Session 3: Lesson Plan

Registration Activity 3: Failure, Grit and Resilience

| Topic | Details | Purpose |
|---|---|---|
| Failure, Grit and Resilience | **Introduction**<br>Use the powerpoint slides to show how people with a fixed mindset and a growth mindset respond to failure and discuss this with students.<br><br>**Re-defining the meaning of failure**<br>Show students the video clips to prompt them to evaluate the meaning of failure. The first clip is of Michael Jordan and the second is a video called 'famous failures'.<br>Students should watch both clips and discuss with a partner how failure can be a positive and motivating experience.<br><br>Look at the next two slides, which show alternative views about failure and discuss them with students.<br><br>Watch the video which defines the meaning of the term 'grit'.<br><br>**Activity**<br>Students create a mind map of all the people they know (celebrities and non-celebrities) who overcome obstacles through grit.<br><br>**Personal reflection**<br>Students apply what they have learnt to their own experiences of failure. They should reflect on the following questions:<br>➢ How do you feel when you make a mistake or get a bad result?<br>➢ How do you think other people see you when you make a mistake?<br>➢ Have you ever discovered something new from making a mistake?<br>➢ Have you ever felt proud of making a mistake?<br>➢ Has a mistake ever made you think more deeply about a problem?<br>➢ Could you profit more from the feedback you get?<br><br>(continued)<br>**Writing Activity: Moving into a growth mindset**<br>Students should take a few minutes to think of a time when they overcame a struggle to learn something. They should | Evaluate the meaning of failure and the benefits of grit and resilience in the face of setbacks. |

| | | |
|---|---|---|
| | reflect on the times when they failed at first but eventually became better at the task in hand.<br>Students should then write a letter to a year 7 student about this struggle. They must tell this student their story and give them advice about what they should do next time they encounter an obstacle when learning something new. | |

Registration Session 3: Resources (powerpoint slides)

## Mindsets: Resilience and Failure

Objective:

Evaluate the meaning of failure and the benefits of grit and resilience in the face of setbacks.




## Failure

To a person with a fixed mindset, failure is about having a setback. Getting a bad grade. Losing a tournament. Getting rejected. It means you're not smart or talented.

To a person with a growth mindset, failure is about not growing. Not reaching the things that you value. It means you're not fulfilling your potential.

People with a growth mindset often find failures motivating. They are a wake up call.

Source: Mindset, Dweck (2012: 16)

## Reactions to failures / setbacks

### A Fixed Mindset

- **Makes excuses and blames others.**
- **Feels like not trying again.**
- **Feels foolish and inferior: gets extremely upset.**
- **Tries to conceal results, afraid of judgement.**
- **Ignores the teacher's feedback as they believe "you either have it or you don't".**
- **Try to give themself a boost by searching for people who got worse results.**

### A Growth Mindset

- Accepts responsibility.
- Reads the feedback carefully so they understand how to improve.
- Very open with their results, no inclination to conceal them.
- Seeks out students who did better so that they can learn from them.
- Remains enthusiastic.
- Knows that with time and hard work they will succeed.

Resource adapted from *Times Educational Supplement*: Mindset Activity

# Activity

Watch the clips below and discuss with a partner how failure can be a positive and motivating experience.

Michael Jordan failure

https://www.youtube.com/watch?v=JA7G7AV-LT8

Famous Failures

https://www.youtube.com/watch?v=zLYECIjmnQs

**Failing** is **essential** to **learning** and to **success**. It is a part of **growing**. You should not be afraid of making mistakes. People with growth mindsets understand this. People with fixed mindsets do not. So ACCEPT CHALLENGES, MAKE MISTAKES, and LEARN from those mistakes.

Internal Monologues

A fixed mindset: 'If I fail I'm a nobody'.

A growth mindset: 'Failing is how I learn. It teaches me that this way does not work so I should try it another way.'

Resource adapted from *Times Educational Supplement*: Mindset Activity

*"The only real mistake is the one from which we learn nothing."*

Henry Ford

*"There is no failure except in no longer trying."*

Chris Bradford

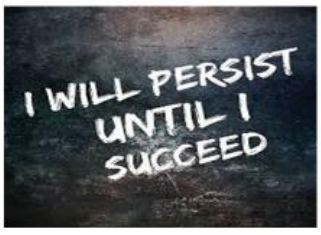
2) Watch the video clip below, which defines the term "grit".

https://www.youtube.com/watch?v=uwsZZ2rprqc&list=PLksohcb0vIBO2Ff5w7glwT67MHUSfQeIO&index=1

# Activity

Create a mind map of all the people you know (celebrities and non-celebrities) that overcome obstacles through grit.

Give reasons for your answers.



# Personal Reflection

- How do you feel when you make a mistake or get a bad result?
- How do you think other people see you when you make a mistake?
- Have you ever discovered something new from making a mistake?
- Have you ever felt proud of making a mistake?
- Has a mistake ever made you think more deeply about a problem?
- Could you profit more from the feedback you get?

Resource adapted from *Times Educational Supplement*: Mindset Activity

# Activity

Take a few minutes to think of a time when you overcame a struggle to learn something. Reflect on the times when you have failed at first but through persevering your brain created a new neural connections and you eventually became better at the task in hand.

Write a letter to a year 7 student about this struggle. Tell this student your story and give them advice about what they should do next time they encounter an obstacle when learning something new.

Resource adapted from *Times Educational Supplement*: Mindset Activity

Registration Session 4: Lesson Plan

Registration Activity 4: Labelling and Mindsets

| Topic | Details | Purpose |
|---|---|---|
| Labelling and Mindsets | **Introduction**<br>Discuss with students the power of labelling and discuss the information on the following slides: "self-fulfilling prophecy" and "stereotypes".<br><br>Discuss with students the fixed mindset and growth mindset response to labels.<br><br>**Applying what they have learnt**<br>Students use the questions on the whiteboard to discuss and reflect on their attitudes to labelling and consider how they can use a growth mindset approach to define themselves and reject labels given to them by others. | Understand a fixed mindset and growth mindset response to labels.<br><br>Evaluate the meaning of labels and the impact that they have. |

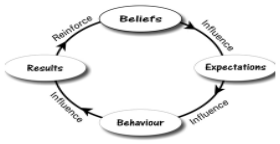
Registration Session 4: Resources (powerpoint slides)



## The power of labelling: the self-fulfilling prophecy

A self-fulfilling prophecy occurs when people act in response to a prediction of their behaviour, therefore making the prediction come true.

For example, someone who is labelled by a teacher as being no good at maths may feel so demotivated that they stop trying in lessons. This would then lead to low attainment and would appear to confirm the teacher's original label.




Resource adapted from *Times Educational Supplement*: Mindset Activity

## The power of labelling: stereotypes

Research by Claude Steele and Joshua Aronson shows that stereotypes can lead to lower attainment. In their study they found that when female students and black students were asked to tick a box to indicate their race or sex before taking a test, in a subject that stereotypically women and black people are thought to underachieve, the act of ticking the box lowered their test score – a lot.

In many of their studies, black students are equal to white students in their performance, and females are equal to males, when no stereotype is evoked. But just put more males in the room with a female before a maths test, and down goes the female's score.

This is why. When stereotypes are evoked, they fill people's minds with distracting thoughts - with secret worries about confirming the stereotype. People usually aren't even aware of it, but they don't have enough mental power left to do their best on the test.

Source: *Mindset*, Dweck (2012: 75)

## Fixed mindsets and the power of labelling

People with a fixed mindset are more at risk of accepting labels as they believe their talents and abilities are set in stone. People with a fixed mindset thus fear judgements. They don't want to be perceived negatively. Even positive labels are a threat because people with a fixed mindset fear losing positive labels.

Fixed mindset thinking...
"I can't do maths!"
"I'm thick."
"Mum was bad at PE, so I am too."
"Music is not really my thing..."
"I'm terrible at science!"
"I'm never going to understand this..."

Source: *Mindset*, Dweck (2012: 75-76)

## Using a growth mindset to take away the power of labels

Growth mindset people tend to care little about labels as they know they can change their character or develop their abilities if they choose to.

This means that to a growth minded person, labels are not permanent.

Labels are only opinions. They don't mean anything!

Source: *Mindset*, Dweck (2012: 75-76)







## Class discussion

- Do you care too much about labels, and about other peoples' perceptions of you?
- Do you sometimes impose negative labels on yourself?
- Have you ever held back from doing something (e.g. putting your hand up in a lesson) because of fear of being labelled? Is this a sensible or positive course of action?

## The Growth Mindset

- How can you use your growth mindset to question the power of labels?
- How can you use your knowledge of the growth mindset to define yourself rather than allowing anyone else to define you?

**Appendix 3: Research Methods (cycle 1)**

Year 10: Questionnaire 1

The purpose of this survey is to gather information about your attitudes towards learning and your beliefs about intelligence. This data will be used to help us to develop some new activities to be used in PSHCE and registration.

The data gathered from the questionnaires will be shared outside of (name redacted) School, but your comments and responses will be anonymous. If you have any concerns or questions about filling in this questionnaire, please speak to your tutor.

Please indicate how far you agree with the statements below by ticking the box that best describes your opinion. Only tick on one box per question.

Some questions ask you to explain your reasons for selecting a particular answer; please be as detailed as you can when answering these questions.

1. Intelligence is something people are born with that can't be changed.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

2. Please explain your answer to question 1. Why did you choose that particular answer?

3. You can always substantially change how intelligent you are.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

4. Musical talent can be learned by anyone.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

5. Some people naturally find maths easy and others will never be able to do it.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

6. Truly smart people do not need to try hard.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

7. The harder you work at something, the better you will be at it.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

8. Please explain your answer to question 7. Why did you choose that particular answer?

9. Trying new things is stressful for me and I avoid it.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

10. Please explain your answer to question 9. Why did you choose that particular answer?

| |
|---|
| |

11. I appreciate when people, parents, coaches, teachers give me feedback about my performance.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

12. I often get angry or upset when I am given feedback that tells me I need to improve.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

13. Please explain your answer to question 12. Why did you choose that particular answer?

| |
|---|
| |

Interview Schedule for Group Interview 1

1. How would you define “intelligence”?
2. Do you think you are born with a certain level of academic intelligence?
3. Do you think that hard work makes a difference to an individual’s achievements and attainments?
4. What difference does hard work make?
5. Are some people born naturally talented or is the level of effort that a person makes more important for their attainment?
6. Do you agree or disagree with this statement: truly smart people do not have to work hard?
7. Do you think that effort is a good thing, or would you see having to make lots of effort as negative?
8. How do you feel about trying out new things that you can’t already do?
9. How do students at this school react to failure?
10. Would students here prefer a GCSE option where people really love the subject but find it 300really challenging, or a subject where they thought they would definitely get an A*?
11. What type of feedback do you find the most useful?
12. Can failure ever be a good thing?

## Appendix 4: Research Findings (first cycle)

Quantitative data from questionnaire: research cycle 1)

1. Intelligence is something people are born with that can't be changed.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 1% (1) | 30% (25) | 52% (44) | 17% (14) |

3. You can always substantially change how intelligent you are.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 10% (8) | 63% (53) | 27% (23) | 0% (0) |

4. Musical talent can be learned by anyone.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 15% (13) | 42% (35) | 39% (33) | 4% (3) |

5. Some people naturally find maths easy and others will never be able to do it.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 5% (4) | 43% (36) | 44% (37) | 8% (7) |

6. Truly smart people do not need to try hard.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 4% (3) | 25% (21) | 57% (48) | 14% (12) |

7. The harder you work at something, the better you will be at it.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 41% (34) | 51% (43) | 8% (7) | 0% (0) |

9. Trying new things is stressful for me and I avoid it.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 4% (3) | 24% (20) | 52% (44) | 20% (17) |

11. I appreciate when people, parents, coaches, teachers give me feedback about my performance.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 33% (28) | 56% (47) | 11% (9) | 0% (0) |

12. I often get angry or upset when I am given feedback that tells me I need to improve.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 5% (4) | 13% (11) | 70% (59) | 12% (10) |

Network Analysis (qualitative data from first student questionnaire: research cycle 1)

Question 2: Please explain your answer to question 1. Why did you choose that particular answer?

Strongly Agree / Agree

| People are born with a certain amount of intelligence (23 responses) |
|---|
| 'Intelligence is something you are born with, for example child prodigies'.<br>'You may be born with a condition that affects how intelligent you are'.<br>'Because I think your intelligence is your ability to learn and it is in your genes'.<br>'Intelligence is set in your genes'.<br>'Because while you can study to a certain point, you do have an intelligence basis set from genetics from your mother and father, so if they were less intelligent then others, chances are that you will be less intelligent too'. |
| An individual's level of intelligence is fixed (3 responses) |
| 'I think that someone's intelligence can't be changed because it is not something that can be taught. If someone wants a grade, they can work really hard to get it, but that's not going to change how clever they are'.<br>'Some people will always have more raw intelligence then others'.<br>'Intelligent people are always intelligent, nothing changes them'. |

Strongly Disagree / Disagree

| |
|---|
| Intelligence can be taught / intelligence is gained through learning (53 responses)<br><br>‘Because intelligence can be taught. Those that are naturally clever don't always end up being the most intelligent’.<br>‘You can become intelligent by learning’.<br>‘I think brains can be 'trained' and become stronger or more “intelligent”’.<br>‘Because everyone can learn, babies are not born like Einstein, they learn’.<br>‘Because people can change and become more intelligent if they want to’.<br>‘You can work hard and become intelligent’.<br>‘Because people can become more intelligent if they study really hard and revise their stuff every weekend, they will know more stuff’.<br>‘If you work hard, then a lot about you can be changed and you can achieve a lot of things’. |
| It depends on environmental factors (5 responses)<br><br>‘People are moulded into who they are. Everyone learns and no one is born perfect’.<br>‘I think that when you are born, you do not yet have any set characteristics such as intelligence. You may be clever but that could always change and you may be less intelligent but that could also change depending on your surroundings’.<br>‘People from uncaring backgrounds are typically less intelligent, due to education’.<br>‘In my opinion, a high IQ is not something that a person is born with, but can be developed according to factors such as how much a person read when they were a child, how much they were spoken to as a child and levels of other educational stimulation as a child’. |

Question 8: Please explain your answer to question 7. Why did you choose that particular answer?

Strongly Agree / Agree

| |
|---|
| Practice and effort lead to improvement (62 responses)<br><br>‘If you keep doing something over and over again, you will eventually become better at it than you were before’.<br>‘Because you are putting in the effort and there will always be a result’.<br>‘The more you practice the certain activity, you are bound to get better at it’.<br>‘Practice makes perfect’.<br>‘As long as you work at it in the correct way, if you work really hard then you will improve’.<br>‘I believe that there's no limit to a person’s potential and if you keep working at something then you're bound to improve as practice makes perfect’.<br>‘You can be good at anything all you need is to hard work and practice’. |

‘The more you practice and the more you learn the better you will become and the more able to you will be’.
‘If you intentionally work extremely hard at something, I believe that one day you will get there’.
‘With hard work, anything can be achieved’.
‘Nothing is ever easy to get, you have to work hard to be able to do something well’.

Effort leads to improvement, but with limitations (12 responses)

‘I agree that if you work harder at something you can improve; however, some people may still find it rather difficult’.
‘Up to a certain point, I think that if you work hard at something then you will get better, not necessarily by very much but you will improve’.
‘Although different people require different amounts of practice, it is proven that working at something will result in an improvement, however small’.
‘It is often that if you work hard your skills and intelligence improve. Some things though are based on natural talent’.
‘There are some things that cannot be improved and only come naturally, but most things can be improved simply by working harder’.
‘I agree, but not fully because in some circumstances you can't get better at something through trying harder, as your physical body might just be unable to do it, or you have limitations. However for many things, hard work can pay off’.
‘Because if someone is bad at something, the harder they work on it the better they will be, but only until a point, as if they are not 'born with it' they will not be as good as some people will be’.

Working hard is an indicator of determination (3 responses)

‘If you work hard, I think you will improve as working hard proves you have the determination and giving your best’.
‘The more determined and dedicated you are to something, the better you will be’.
‘Because if you are dedicated and determined enough, you can improve.’

Strongly Disagree / Disagree

There are limitations on what people are able to achieve (7 responses)

‘Sometimes you're just naturally bad at things’.
‘Sometimes it isn't just about working hard; other things can also play a part, like talent’.
‘Because sometimes no matter how hard you work you might only be able to improve to a certain extent’.
‘It depends on what you work hard at e.g. there are physical limitations when it comes to sport’.
‘It is only true for some people’.

Question 10: Please explain your answer to question 9. Why did you choose that particular answer?

Strongly Agree / Agree (23 students)

| |
|---|
| Difficulty with leaving the comfort zone (10 responses)<br><br>'For most people, we stick to what we know. This is because we feel safe and we are used to it. It could take a lot of courage for a person to try something new and it can be too scary'.<br>'It can be daunting to move away from areas you feel comfortable with, especially if you are the first person to do it without any advice from friends / family'.<br>'I don't appreciate change or having to leave what I am used to'.<br>'I sometimes get nervous about being in new situations, if it is not in my comfort zone where I feel comfortable'.<br>'Generally speaking I prefer to stay within my own comfort zone, it can be worrying to leave it'. |
| Concern about making mistakes / worry about how things will turn out (7 responses)<br><br>'I find new things stressful because I do not have any idea how they will turn out and feel that I do not have any control over the situation; I could make a mistake'.<br>'I agree because I always get worried / nervous that I'm going to fail when I try something new'.<br>'Because trying new things often makes me feel out of my comfort zone and I worry that I may not know how to do a certain thing, or that I may do something wrong'.<br>'I avoid new things which I am certain I won't like and when I am worried about making a mistake'. |
| I frequently experience anxiety (2 responses)<br><br>'Because I am an anxious person (e.g. starting secondary school was very stressful for me)'.<br>'Because I am an anxious person'. |
| Meeting new people is anxiety-inducing (2 responses)<br><br>'Because I don't like having to meet new people; it makes me anxious'.<br>'Because I find it worrying to be with new people and in new situations'. |
| Difficulty / concern about change (2 responses)<br><br>'Because sometimes trying new things can maybe change who you are'.<br>'It can be hard to adapt to new things and I dislike change'. |

Disagree / strongly disagree (61 students)

Excitement and Interest (26 responses)

'Trying new things makes life more interesting. Without new things I would be bored'.
'Because I find trying new things interesting and eye opening'.
'I find trying new things fun'.
'Trying new things is exciting'.
'I like trying new things and meeting new people because you never know where it could take you, and the interesting people you can meet. Carpe diem'.
'I love a challenge'.
'Because I enjoy trying new hobbies all the time'.

Learn more about yourself/ personal development (20 responses)

'Trying new things can help us see more about ourselves, our likes and dislikes and so should not be avoided'.
'I, personally, enjoy trying new things as I think it helps to develop my character and make me a more interesting and confident person'.
'I think trying new things is good for you, even if it is not enjoyable. It gives you wisdom and knowledge of your personality - knowing what you like'.
'Because without trying new things I would never be able find out what I like and what I don't like'.
'Always try new things it may make you a better version of yourself'.
'I enjoy trying new things as it makes me more confident'.
'Trying new things will increase your confidence'.

A learning experience (knowledge and / or skills) (15 responses)

'Trying new things gives me the opportunity to learn new facts and skills'.
'I love trying new things as it widens the knowledge I have and the variety of things I can do'.
'I enjoy trying new things, as I like learning new skills and facts, and generally enjoy challenges'.
'I love to try new things because that is where I learn things the most'.
'Because new things are exciting and are a chance to learn and understand new things'.

Question 13: Please explain your answer to question 12. Why did you choose that particular answer?

Strongly Agree / Agree

It frustrates me that I am not doing as well as I want to (12 responses)

'Because I feel like I have not done well enough'.

‘It is very much linked to the fact that I want to think I am doing everything right- even though I know deep inside that I am wrong. If there is something that I hate being told -even though I know it is true, I will get angry since I know it is true but do not want to accept this’.
‘I am annoyed at not doing well’.
‘I don't like to do badly’.

I take criticism personally / feel attacked (3 responses)

‘I take it personally and I don't like to be criticized’.
‘Sometimes I think people are purposely finding faults’.
‘I am just naturally the sort of person that does get a little angry if I feel under attack with negative feedback’.

Disagree / Strongly Disagree

Negative feedback helps me to improve / is motivating (50 responses)

‘I find it helpful as I know what I can improve on’
‘If you get negative feedback it just means you need to try a little harder and try to improve your flaws’.
‘If I get negative feedback I can use it to get better’.
‘Don't get angry over criticism because criticism helps you to improve’.
‘Negative feedback is useful and it means you have something to work on’.
‘Because gaining negative feedback is good as you can learn what you are bad at so you can improve in those areas and hopefully next time not have those negatives’.
‘I like to learn from my mistakes’.
‘It makes me want to try harder’.
‘Criticism helps people grow’.
‘When I receive negative feedback about my performance, I tend to feel more motivated to work harder in order to improve rather than feeling angry’.

I know that it is useful, but I can still find it upsetting (19 responses)

‘For me, negative feedback is seen as an opportunity to improve, however, sometimes I may get upset if all my feedback is negative’.
‘Negative feedback I can find somewhat distressing sometimes, but it does give me a goal and I do become encouraged and try my best to work towards it’.
‘If it is all negative I would feel quite frustrated; however, I think that it would help me improve’.
‘I may get upset but I understand that this is important and I appreciate honesty and I appreciate it when people try to help me’.

Coding Grid One: First Group Interview with Students

| **Codes *(shorthand codes in brackets)*** | **Student 1** | **Student 2** | **Student 3** | **Student 4** |
|---|---|---|---|---|
| Defining Intelligence / different types of intelligence *(Def Intel)* | 8-10<br>14-16 | 11<br>17-19 | 154-157 | 2-6<br>64-71 |
| Measuring Intelligence *(Mes Intel*) | | | | 20-25 |
| Is intelligence fixed or malleable? *(Fixed / Mal)* | 50-51<br>72-74<br>76-78 | | 28-33 | 34-43<br>95-105 |
| Effect of environment on intelligence *(Env Intel)* | 52-57<br>136-142 | | 46-49 | 44-45<br>58-61 |
| Effort | | | | |
| The importance of practice *(prac)* | 90-92 | 83-89<br>131-132 | | 124-130<br>133-134 |
| The benefits of effort *(ben eff)* | | 163-174<br>179-183 | 175-178 | 184-187 |
| Effort as necessary for success *(necess succ)* | | | 157-160 | 61-64<br>145-152 |
| Comparing effort levels between students *(comparison)* | | | | 367-352<br>358-362 |
| Limits on ability *(Lim abil)* | | | 115-121<br>123 | 108-113<br>122 |
| Working outside the comfort zone | | | | |
| Fear of making mistakes *(fear)* | 220-224 | 287-289 | | 199-218<br>235-245 |
| Positive effects *(pos eff)* | | 190-198 | | |
| Labelling and Judgements | | | | |
| The school as a judgemental environment *(jud env)* | | 257 | | 258<br>271-280 |
| Concern about other judgements made by others *(jud oth)* | 284-286<br>248-256 | 259-265<br>268-270 | | |
| Self-judging *(self)* | | | | 266<br>282-283<br>290-298 |
| Feedback and criticism | | | | |
| Useful constructive feedback *(con fed)* | 337-339 | | | |

| | | | | |
|---|---|---|---|---|
| Differences in opinion re: feedback *(diff op)*<br>Unhelpful feedback *(unhelp fed)* | | 304-317<br>321-325<br>343-344<br>346-349 | 326-330<br>351-352 | 353-358<br>319-320<br>340-342 |
| Parental Pressure *(Par Press)* | | | | 330-335 |
| Failure *(Fail)* | 361-366 | 354-357 | 227-234 | |

Transcript of first group interview

**1Q: How would you define "intelligence"?**

**2Student 4:** I think there's different types of intelligence because you could sort of be like I'm sure **3**this isn't the proper phrase for it but socially intelligent where you can grasp different situations **4**and grasp different people but then you can be academically intelligent so I guess different people **5**have different types of intelligence or maybe both but I think it's not something that's just like a **6**singular thing.

**7Q: So there's no one right way of defining it? What do the rest of you think about that?**

**8Student 1:** I think you can have academic intelligence and practical intelligence I think um just 9common sense or um like being good at maths isn't the same as being intelligent just like common 10sense.

**11Student 2:** Yeah it doesn't necessarily make you more intelligent if you can do maths well.

**12Q: How would you separate out academic intelligence from common sense? How is that 13different?**

**14Student 1:** Being able to think for yourself, not having to ask, like practical things knowing how to 15do an equation or something but then asking in a lesson stupid questions like 'can I write in my 16book'? Just think for yourself and write in your book! It's just common sense things.

**17Student 2:** And just not even work, like if you are cutting something in the kitchen, have your 18fingers out of the way so that you don't cut your fingers. That's common sense, that's 19intelligence. Some people might not realise that 'oh wait hang on'…

**20Student 4:** How much knowledge you can keep and how methodical you are is like really different. 21I think also like in terms of measuring intelligence, it's quite relative as well. Maybe at this school 22that aspect of relativity is lost slightly because the other day someone was like, 'oh god I only got 23a B plus' and I was like 'yes, at this school that may not be the highest grade or what you'd want; 24if you look at that on a wider spectrum', it's like how you measure it personally is really relative as 25well to your surroundings and stuff like that.

**26Q: So, thinking then about academic intelligence: do you think you are born with a certain level 27of academic intelligence, affecting, for example, how well you could do in a subject at school?**

**28Student 3:** I think like, not everyone is born with the same amount of intelligence. It's not that 29everyone is born at the same level, I think people are born slightly different but it doesn't mean 30you can't reach the same level as someone, so you are different, maybe someone is slightly more 31intelligent that someone but I think that can be changed so it's not something that can just stay 32the same. Maybe you're not as clever as someone, it doesn't mean you're going to stay like that 33forever.

**34Student 4:** I kind of agree with that but at the same time I disagree. You are born with a certain 35amount of intelligence, that is inherited through genes but then your upbringing and so forth can 36only like shape you up to a point because if you are born with maybe like a learning difficultly that 37would stop you – this is completely hypothetical –doing history for example, you are never going 38to be able to be good at history. Do you see what I mean? That's quite a bad example, but also 4039things like music and sport. Some people's brains, like, they see a piece of music and they can 41like, without thinking they can translate that into what their fingers are meant to be doing or their 42mouths are meant to be doing but then some people you look at art and they are not born with

that sort of creative gene. It depends how the brain works. You can only change and grow to a certain point, but then equally someone could be born really intelligent but then their upbringing was – they didn't encourage it – and you've also got your own limiting factors.

**Student 3:** Yeah because if you're in a school, here we are quite lucky with lots of intelligent people so we automatically kind of stay in intelligent. If we were in a maybe not so study orientated school then maybe we wouldn't … we would kind of lose our focus on stuff and we wouldn't be where we are now. So it depends where you are.

**Student 2:** Yeah, that matters a lot, the people you're around with. Say your parents are both really intelligent, they'll pass some of that through their genes but then also because they are intelligent they'll be able to raise you properly. Like my brother, he spent a lot of his childhood just talking with adults so he didn't really have that many friends at school, but then his school wasn't that great so because he spent so much time with more intelligent people, and discussing, for his age really quite complicated things, he was really quite intelligent for his age. And it's just the people that you spend the most time with, they will develop the intelligence that you already have.

**Student 4:** Yeah, like a classic clichéd TV plot when someone is in a really bad school or workplace and then someone comes in and they are like, 'oh, my goodness, you have so much potential' and then suddenly overnight they become the Prime Minister and you've got that clichéd plot line and I think it does link in to but then it also like your own motivation because you could be at this school and just not care. You could just not try hard and I think if you are born with intelligence about you don't have anything that motivated you and you don't work hard, you won't go as far as someone who was less intelligent but they put a lot of effort in. Your intelligence and what you get in school is only going to help you in life to a certain point. It can get you to a university, a good one, but then when you enter work, if you're not good with other people – there are other things that come in to it like personality and that's where the different types of intelligence come in because you are never going to get a promotion if you can't work with a group of people. That is something that lots of people shield themselves from but they don't open their eyes to see that our grades aren't always the most important thing in life. I know that sounds like I might not care but I do care.

**Student 1:** I also think that the way you approach tasks you are born with, like if you approach tasks in a certain way, intelligently and do it methodically that can also help and I think you are born with, like the way you think about things at different angles and approach in different ways.

**Q: So, you think that you are born with that, a certain perspective?**

**Student 1:** Yeah like a certain perspective. You might have a creative perspective or very logical and everything has to fit into these categories, like creative, but it could be anything, like different angles.

**Q: Let's think then about effort, which we have already started talking about a little bit. Do you think that hard work makes a difference to somebody's achievements and attainments?**

**All:** Yeah.

**Q: So what difference does it make?**

**Student 2:** Because you keep practising the work. So say you are learning an instrument, to get better at playing that instrument, you have to keep practising, because you need to get used to the finger positions and everything so the more practise you put in the more it consolidates the memory in your brain and then that practice leads to other things and then it develops your brain

really well. I think you have to keep using that part of your brain to get better but then if you just stop completely, for example playing the piano, you will lose those memories. If you don't work hard at it you will just lose it.

**Student 1:** It's like training your brain to do it. Like um building pathways in your brain. If you keep doing it you keep training your body and your brain gets used to it. If you are training your body, if you are an athlete, if you keep doing it and keep growing on it.

**Q: So what's the case then: Are some people born naturally talented or is it that some people work hard at sports or music?**

**Student 4:** It's a combination of both. Because you can really want to play an instrument, but if your mind genuinely can't get around that whole prospect, then the likelihood is that you won't be able to prosper and you might be better at something else. I think it's the same with sport as well. If you naturally have the ability like, I wish I was sporty and I could …. It's weird because … it's to a point where you want to do something but if you're body isn't if you're naturally not good at something then you start to lose motivation and you realise you're not so good naturally so say you're around a group of people who are really sporty and you were in a race then if you can see that you're not keeping up with them, you can still enjoy it but you do start to realise that maybe it's not your thing. I think that sort of is something that as you get older becomes more apparent and you start to realise what you are good at and what you're not good at and what you can develop on.

**Q: So do you think that people are more likely to continue with something if they feel better at it than the people around them, whatever that might be?**

**Student 4:** Yeah. If you look at choosing GCSEs and A-levels, as a very basic type of thing. If you are rubbish at art you're not going to take art. I enjoy art – drawing and painting and things, but even if I do enjoy it, why would I take it if I know I'm going to fail at it? Why don't I just do it as something I enjoy? I think you've got this very competitive side and then I'll do it because I enjoy it and you are more likely to. I don't know what come's first, the enjoyment and then you get good at it, or you're good at it naturally and therefore you enjoy it. It's that cycle type thing.

**Q: What do the rest of you think about that?**

**Student 3:** It's a combination. I don't think you can become … if you are born really, really sporty, then you know what kind of direction you want to go in. And then you kind of enjoy it too because you know you are really good at it but suppose you're only kind of sporty, you can work towards it but if you think you are really not good at it you kind of lose your hopes in it and then you don't try and work towards it. I think there's a limit of where you can succeed in something so even if you are not born with something you still can reach towards it, but then there's a limit where you can't.

**Student 4:** That's where reason comes in.

**Student 3**: Yeah, reality.

**Student 4:** That's why the core subjects, you've got English, maths and science and they are skills that everyone is so used to and they use sort of quite normal things that you need to use every day, you know when you use a normal part of your brain but if you look at sport for example, that's using a different part of your body that maybe not everybody is good at and then you look at music, it's looking at a different part of your brain so there's a difference between subjects where most people can do them, even if they are not every good at it, they will still be able to do it, purely because they have been trained.

**Student 2:** Some things we have been learning since a very young age it depends on your parents of course. But like some people might have already been working on it.

**Student 4:** I've got baby books that are like: 'How many sheep are there in the field?' It's like subconsciously you're gaining knowledge and therefore there's never any contradiction in your mind that would ever say you can't do this.

**Student 1:** It's like … um … you say that you're naturally good at the core subjects that it nothing to do with the nature, more the nurture of it because you've been doing it since primary and it might be like everyone is born with the same type of intelligence when they're born but influences like whether their parents played with them and they had like movement and they built good reflexes, or whether they played those games where you put squares into a box and that would mean a more logical brain but it might be that when you are younger you absorb everything and that could sort of mould your brain to be more interested when you grow up.

**Q: Do you agree or disagree with this statement: truly smart people do not have to work hard.**

**Student 4:** I disagree with it because how could they ever be smart in this first place if at some point they didn't work hard to gain that knowledge? Logically you can't naturally be smart without having learned anything. It doesn't work like that and if you don't continue working hard and continue gaining more knowledge because you could be 14 and go into a class of 8 years olds and you would be really smart when you could be smart when you were 8, but if you don't continue working hard then when you get to say 14 relatively you're not going to be smart. Especially at school, being smart is very relative because if I went into a class of Year 7s, I'd be really smart.

**Student 1:** I don't know because it's hard to define 'smart' because there's knowledge and then there's intelligence and then there's lots of different types of intelligence and um if being smart is like knowing all the capital cities in the world, you might know all of them but are you actually intelligent in like can you be given a problem and solve it just by finding different ways that you haven't really learnt and learning new things? I think you have to work hard to stay smart to keep learning things but if you have intelligence you have to work hard to keep up that intelligence, but the side of being smart that's knowledge I think you need to keep working on it and learning because that's the training your brain bit to learn new things.

**Q: Do you think that effort is a good thing, or would you see having to make lots of effort as a negative thing?**

**Student 2:** I think you need to put effort in because if you are putting effort in all the time … it depends what sort of things because I feel like if people are always doing extra things or just helping people out, it develops your personality, your brain, your intelligence, your communication skills, it develops all of these things that you need in later life. Even at primary school if you are just playing by yourself, if you decide to share it with someone then already that's communication skills then already that's working together with someone else and doing that sort of develops into secondary school, doing something like house drama or something, working with more people and doing something more complicated. For all of that you have to put more effort in but I feel like the people who just do the minimum amount of what they have to do, they may be smart, but they are not developing all of these other skills that are also very important and I think people need to have and just to have an easier sort of more fulfilled life, as such.

**Student 3:** I think it will pay off in the end if you don't put in those efforts, it may not mean much at the time if you just help out it may not be such a big thing but at the end of the day, compared to someone who hasn't put that effort in, you'll probably look better in front of them as in people will know that you've bothered and you're not just someone who is going to stand aside.

**Student 2:** You also feel better. You'll feel like people will trust you and that is basically how you make friendships because you put in the effort. If you stop putting in the effort then you'll lose friendships you're not going to work with people as well so if you maintain the effort, it's just going to be better for you and for everybody else. And everything is going to be a bit easier and nicer.

**Student 4:** Yes, the more people you know. I saw something on Facebook there's this phrase, 'your network is your net worth'. The more people you know and you get to know through different things the more opportunities you'll have the more things you'll have to say about yourself in any situation the more you are able to do and you've gained.

**Q: How do you feel about trying out new things that you can't already do?**

**Student 2:** I'm definitely very pro-trying new things. You may think that you are going to be really bad at it, but you might be wrong. In most cases I think people are wrong because the fact that they have the interest in it in the first place means that they have always sort of wanted to try it but they … it's the fear of realising that maybe you are right in thinking you are going to be wrong, but really... In Year 7 I was doing some Indian dance. I don't know anything about Indian dance but it was and I probably wasn't any good but I really enjoyed it, something really new, and that sort of enabled me to work with people who weren't necessarily my friends and then I developed more friendships and I found out, 'Oh I actually like that sort of dance, I like that sort of music it's really fun', and I think just trying all of these new things, not only you'll make friendships, but you also might realise you're amazing at that sort of skill and if you never tried it then you may have never have realised that.

**Student 4:** In a high pressure school like this one, I don't think the pressure's from teachers and in my case it's not from my parents, but I know some people do have that aspect of it, a lot of it is from ourselves, like a lot of pressure I put on myself and I think people are scared of not… They are scared of being wrong they're scared of not being the best and that's the issue because I know that half of the things I do, I'm not the best at and I accept that. I go 'well there's no point because I enjoy it', for example with the tuba, I go to orchestra and I'm not the best person there and I know that, I've only been playing for a few years, but it's something I really enjoy doing and I think even with a very basic example, when you're in German or something, I know there are so many people who probably have the answers and they are much better at German than me, but I put my hand up and I sort of say it and even though it is wrong learn something from it and I say it because I'm not as scared of getting it wrong. It's something you have to accept, even though that's a really obvious one, because you're simply just getting the answer wrong or right but then it gets more complex when there are different answers and you've got to show an opinion. For example, in English lessons people might have an opinion that they want to share but they can grapple with the fact that it might be right or wrong, it's your opinion to a certain extent anyway and in my English class we all speak because the teacher will point us out or whatever, but there's only five people who always volunteer. Half the time I'm saying something where people will disagree with but I think that it's getting of the fear that you might not be the best at something and if you try something new it might not be the best but it doesn't matter.

**Q: Student 1, what do you want to say?**

**Student 1:** I think that if you enjoy it and you are interested then you have got a head start at being good at it anyway. If you have an open mind about being good or bad at it and if you enjoy it like, if you think about it you will hold yourself back a bit and think 'I'm not going to do this because I might be bad at it', but if you go in with an open mind and if you enjoy the thing you are going to do, you will probably have a better chance at being good at it.

**Q: How do students at this school react to failure? What do you think failure means to students in Year 10?**

**Student 3:** I think especially in this school especially, no-one's failed that much and everyone's seen as normal. They always do well in stuff and even like a test, even if someone does well, or they get one bad score, they will flip and just go crazy and it's just like its fine. I think in this school we set our goals a bit too high from ourselves and we expect a lot from ourselves and so suddenly when it's new things it's a bit like, 'are we going to do well in that or not', but I think in other schools maybe they don't expect that much from themselves so they can try new things because they are not scared of failing.

**Student 4**: I know that some people get annoyed at me because when we have a test, I'm like, 'Oh it's just a test', you know like an end of topic test, and some people have been genuinely been really annoyed at me because they are like, 'it's not just an end of topic test..' I think some of that is just from always constantly being right and then if they want to try a new thing, if they are not good at it, they don't know how to be bad at something because they doubt. The majority of us here have never had any huge, huge, huge obstacle to … they might seem big at the time but the fact that we don't know how to deal with being wrong is definitely an issue. I was reading something the other day about mental health and in (information redacted) schools there's the most mental health issues compared to different types of demographics and that's because … a huge part of that is not wanting to be wrong and feeling the need to be the best or be right.

**Q: Student 1, if someone was to get a very low mark in a test, what do you think that would mean to somebody here?**

**Student 1:** I think just the other people. If you got a test back and it was just you, you'd think, that's all right, 'I can work on that, I'll just try my best'. Everyone here compares each other. Teachers are like: 'don't compare yourself to other people if you tried you best', but everyone compares themselves with each other and think subconsciously everyone feels pressured to be the best and compete against everyone else and if they get a bad test score they are not just letting themselves down, they're letting everyone else down. It's the pressure from other people. They're not outwardly giving you pressure you need to do well, but it's just them being there and doing it as well gives you pressure and you feel you need to compete with them and compare yourself to them.

**Student 2:** I feel like, as people we're all very judgemental, and so…

**Student 4:** That comes with being intelligent because you have to reason.

**Student 2:** That can really be quite a bad thing. All of us, if we someone, just what they are wearing, we instantly think something. It can actually be quite bad or good. You can like it or think that doesn't really look very good. Even if you don't know who they are. Whereas here, I think that reason that people feel so disappointed with themselves if they don't do very well, is because they just feel they are going to get judged by someone and also again with the being

afraid to be wrong, I know that if I say something, then sometimes I just feel like there will be people thinking things and then you feel more pressure on yourself.

**Student 4:** I think some of that judgement comes from yourself though.

**Q: When you say people would be thinking 'things' what 'things' do you mean?**

**Student 2:** Negative things like that was a stupid thing to say, especially if you are not really sure or confident. There's a huge variety depending on the situation because this is a very broad topic. Again, we are very judgemental and we can just think really anything.

**Student 4:** I think more intelligent people are more judgemental. We are doing (name of text redacted) and it's obvious that the more intelligent characters judge people because they have to, because they have reasons for doing what they do, they have motives and because everyone is like that here and there is not that much contrast in that sense and we judge ourselves we overthink everything so we are not just thinking about what we're going to say before we start speaking, we are thinking about what we're going to say. That means that we can have discussions that are a lot more developed or intelligent than at other schools. It also means that people must feel that by disagreeing with something, or by trying something that they are bad at, that that's just not an option to them because they think it through too much. If you think anything through too much, if I walk out that door I could trip over and bang my head. End.

**Q: I hope that that doesn't happen!**

**Student 4:** That's like a stupid example, but I think because we think so much, I think a negative side can come into it.

**Student 1:** That's also to do with the fear of doing new things like worrying what other people are thinking and overthinking. Like coming up with ideas what they would be thinking about you, like 'If I wore this dress, what would they think about me'?

**Student 2:** Actually, trying out new things could come down to being intelligent, for example, if you are going to try abseiling, you might think, 'oh I want to try that but it could be dangerous', so not like getting it wrong, but there's the danger aspect of getting something wrong.

**Student 4:** For me, abseiling at PGL , I can logically think 'oh its safe', but I worried that I would be wearing a harness, what will that look like, or at PGL, we're going surfing, I'll have to wear a wetsuit, what will that look like? Comparing myself, and overthinking. And the worse thing is that you're worrying about what you're going to look like. Obviously everyone has different issues: that's mine. The worst thing is that we have PSHCE lessons and we know we shouldn't think these things but we do. I do peer education where I'm talking to young girls about body image and some of the stuff that we do I'm doing with Brownies who are 7, and I'm saying stuff and thinking I know this, but there's a difference between knowing something in PSHCE and having that knowledge but then actually just doing it. It's in principle and then it's in practice.

**Q: Would students here prefer a GCSE option where people really love the subject but find it really challenging, or a subject where they thought they would definitely get an A*?**

**Student 4:** For me the topics I enjoy are also the one's I'm good in. For me my favourite subject is history and I also happen to be quite good at it. Whereas (redacted) I'm not good at it, but there are lessons where I come out thinking I am so stupid and I wish I had chosen drama.

**Student 2:** I think it depends on the school and the teachers and the support you are going to get. I know that for example, like (redacted), we have had regrets, but in the end, right now we are studying a (redacted – piece of work described) and we enjoy it that we are starting to

understand it and its one of the simpler ones. I think oh, it's ok, but at the end of the GCSEs and it will be fine. So at first we were a bit put down by it because the teacher said that we have to take the subject seriously, but we were and we came and we just thought it was going to be easy but we didn't think it was going to be easy, we knew what we were getting ourselves into, but the fact that we kept getting said that 'this is a real subject and you have to take it seriously. I don't want any messing around'. It just felt a bit disheartening and that we didn't have that support. Now there's more support so I think you should take the subjects you love, but knowing that it comes down so much to the teacher and the support and encouragement. It's all down to the teacher, because it may be a subject you love, but the moment that you get a teacher who doesn't support you, you will start to hate the subject and you won't want to go and learn because the teacher is a major part of the lesson.

**Q: How would you would feel if a teacher was criticising you?**

**Student 4:** If someone even in the slightest bit criticises us, even if they are not meaning it like that, we instantly take it for criticism.

**Student 2:** It depends on how it is phrased. If it's put like, 'oh you haven't been doing so well in this, you need to work on it', I'll work on it. If it's just constant sort of not even what you need to work on, 'stop talking, you're not working hard enough, you're not spending enough time on this, you're not taking this seriously', that's what really puts us down because I am very very busy and I always try hard in lessons, but if that is said to me it's very disheartening.

**Student 4:** It's so disheartening, at (redacted) parent's evening a teacher was like, last year you got 95% and this year you got 75%, you need to try harder and do more work. I was just like, I literally have no spare time, apart from holidays or if I'm ill or something and saying that to me implies that I'm not trying my hardest, but I know I am. That element of are you working your hardest is so individual to the person. Like choosing your GCSE options, I'm a school council member and hear students say, I want to do (redacted), my parents say I have to take (redacted) and (redacted), but I don't want to take (redacted) or (redacted). I want to take (redacted). There's that element too. My parents didn't put any pressure on me, they said 'do what you want to do, do what you enjoy', but I know that there are other people in our year that would have liked to have done something else, but their parents thought 'oh that looks academic'.

**Q: Student 1, what type of feedback do you find the most useful?**

**Student 1:** One's where they tell you how you can improve. That's not saying you're bad at this. One saying you can improve and this is how you're going to do it. Not saying that you are bad at this without giving you any guidance on how to move on from that.

**Student 4:** Also not sugar coating it. Because we are all so intelligent that if a teacher comes up to us and says, 'Oh you're all doing so well, but we'll just give you a helping hand', obviously no teacher is going to phrase it like that…

**Student 2:** Some teachers do, they were thinking of getting (redacted) tuition, it was like 'all of you are doing really well but some of you just need that little extra help'.

**AF: When the teacher said that, what did you think they were really saying?**

**Student 2:** Well, it was like especially because looking around the whole class and looking at certain people, it was like, well you don't have to say that to the whole class. Just say it at the end: 'I just thought that this perhaps would benefit you, perhaps you're not doing so well at this, this is quite important'.

**350Q: Student 3, what type of feedback do you find the most useful?**

**351Student 3:** Personal feedback is good. Class feedback is not as helpful because it might help you 352a bit, but it's not helping you that much.

**353Student 4:** It also depends on the subject because in (redacted) we get I know our teacher, some 354people hate this but I actually quite like it, and I think that this also links into the fact that they 355don't like it because they haven't done the best in the class, perhaps they could do the best they 356can for themselves, but then they haven't got the best mark in the class or whatever, he's going 357it to show good work and we go through it, looking at the work. Some people, it's not the 358actual activity they don't enjoy, it's the principle that they didn't do as well as other people.

**359Student 1:** That goes back to comparing yourself with others.

**360Q: Can failure ever be a good thing?**

**361Student 1:** Failure is good because you learn from it. It's like telling lies. Never telling lies, even 362if it's a white lie, telling someone that their dinner tasted nice when it was horrible, if you tell 363them that it was bad then they will maybe do a better one next time but because they failed 364that, they can do better next time and it comes back to the idea that you can keep on learning. If 365you learn from failure then you won't fail again next time, but if you just do it right the first time, 366you don't go through the process of learning it.

**367Student 4:** Effort is a bad thing if someone puts too much effort in and obviously that's very 368personal as to what's too much effort. Actually - no I don't agree with that, no. I think there's a 369difference between effort and the amount of time you spend on something. I know that I put 340the maximum amount of effort into all the things I do. All the things I do I put effort in, but 341maybe I only revise for two hours for a (redacted) test, and someone else might put in six hours 342revision, which to me sounds utterly ridiculous, that's like a quarter of a day lost for (redacted) 343revision. For me, I only do a few hours because I know that in that time I can learn everything I 344need to, whereas for some people, and I don't disagree with it, this is what they what to do, I 345just think you have got a life, live it. Also things that have happened in your life and that you 346know of make you read the world differently, like so for my aunt died when she was 19 so for me 347since I was little, it's always been ingrained to see what I want to do and make sure I do it and it's 348difficult or too expensive, we'll work around that so that I can do everything that I enjoy and if 349that means that I go to band instead of spending an extra hour on (redacted) revision, as long as 350I know that I put all my effort into it, then that's when it gets annoying, like when you said about 351the feedback earlier, if someone says you haven't put in as much effort as you should have done, 352then it's like, my best effort isn't the same as someone's else best effort.

**353Q: Do you ever think that failure can be a good thing?**

**354Student 2:** If you've never failed in your life, you'll be afraid of failing, which will set you back for 355stuff if you've never failed a (redacted) test, you will probably be terrified of it and spend hours 356revising. So if you do fail it once, yes you'll be upset and annoyed with yourself but you'll realise 357it's not the end of the world and you don't need to revise, or maybe you do, but you can live.

**358Student 4:** It gets annoying when you see people who don't have a life and it's like you're going 359to a very high achieving school, you are going to get good results, but you often find people 360have, like someone came in the other day and said they didn't go to their swimming club 361because they did some extra work and I was like, 'but I you wanted to go the swimming club, 362why didn't you go'?

## Appendix 5: Research Methods (cycle 2)

Year 10: Questionnaire 2

This survey follows on from the online questionnaire that you completed at the beginning of term 4, and the first 5 questions are repeated from the previous survey.

The purpose of this survey is to help us to evaluate the mindset activities that you have completed with your tutors this term. We will use your responses to amend and improve the mindset scheme of work.

The data gathered from the questionnaires will be shared outside of (name redacted) School, but your comments and responses will be anonymous. If you have any concerns or questions about filling in this questionnaire, please speak to your tutor.

1. Intelligence is something that people are born with that cannot be changed.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

2. You can always substantially change how intelligent you are.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

3. The harder you work at something, the better you will be at it.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

4. Trying new things is stressful for me and I avoid it.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

5. I appreciate it when people, parents, coaches, teachers, give me feedback about my performance.

| | | | |
|---|---|---|---|
| Strongly Agree | Agree | Disagree | Strongly Disagree |

6. Has the mindset work that you have completed this term affected your views about the learning process?

| | | |
|---|---|---|
| Yes | To a certain extent | No |

7. Please explain your answer to question 6. How has the mindset work affected your views?

8. Which aspects of your PSHCE lesson on mindsets did you find the most helpful / effective for your learning?

9. What suggestions (if any) would you make to improve the lesson, in order to help future year groups to learn about mindsets?

10. Which aspects of your registration session on *Adopting a Growth Mindset* did you find the most helpful / effective for your learning?

11. What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

12. Which aspects of your registration session on *Effort and the Comfort Zone* did you find the most helpful / effective for your learning?

13. What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

14. Which aspects of your registration session on *Resilience and Failure* did you find the most helpful / effective for your learning?

15. What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

16. Which aspects of your registration session on *Labelling and Feedback* did you find the most helpful / effective for your learning?

17. What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

18. What is your opinion about the most effective time to learn about mindsets?

| | | |
|---|---|---|
| A combination of PSHCE and registration sessions | Only in PSHCE | Only in registration |

19. Please explain your answer to question 18.

Interview Schedule: Group Interview 2

1. Did you learn anything from your PSHCE lesson about mindsets and, if so, what did you learn?

2. What was the most useful thing about the lesson? What helped your learning the most?

3. How can the PSHCE lesson be improved, so that we can use it with future year groups?

4. Were the mindset registration sessions useful? If so, how?

5. Can you suggest any ways that the sessions could be improved?

6. Do you feel that this work changed your view of intelligence and what intelligence is?

7. Will this work change your approach to learning in the future?

Teacher Questionnaire

1. Which aspects of the mindset PSHCE lesson do you find to be the most effective for the students' learning?

2. Can you suggest any improvements for this session?

3. Which aspects of the session *Adopting a Growth Mindset* do you find to be the most effective for the students' learning?

4. Can you suggest any improvements for this session?

5. Which aspects of the session *Effort and the Comfort Zone* do you find to be the most effective for the students' learning?

6. Can you suggest any improvements for this session?

7. Which aspects of the session *Resilience and Failure* do you find to be the most effective for the students' learning?

8. Can you suggest any improvements for this session?

9. Which aspects of the session *Labelling* do you find to be the most effective for the students' learning?

10. Can you suggest any improvements for this session?

11. Are there any other strengths in the scheme of work that you would like to mention?

12. Do you have any other comments or suggestions for improvement for the scheme of work as a whole?

## Appendix 6: Research Findings (second cycle)

Quantitative data from student questionnaire: research cycle 2)

1. Intelligence is something that people are born with that cannot be changed.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 1% (1) | 8% (7) | 67% (56) | 24% (20) |

2.You can always substantially change how intelligent you are.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 30% (25) | 64% (54) | 6% (5) | 0% (0) |

3.The harder you work at something, the better you will be at it.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 55% (46) | 45% (38) | 0% (0) | 0% (0) |

4.Trying new things is stressful for me and I avoid it.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 0% (0) | 18% (15) | 67% (56) | 15% (13) |

5. I appreciate it when people, parents, coaches, teachers, give me feedback about my performance.

| Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|
| 36% (30) | 62% (52) | 2% (2) | 0% (0) |

6. Has the Mindset work that you have completed this term affected your views about the learning process?

| Yes | To a certain extent | No |
|---|---|---|
| 19% (16) | 61% (51) | 20% (17) |

Results to question 6 shown by class

| A | | | B | | | C | | | D | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | To a Certain Extent | No | Yes | To a Certain Extent | No | Yes | To a Certain Extent | No | Yes | To a Certain Extent | No |
| 5% (4) | 19% (16) | 1% (1) | 10% (8) | 15% (13) | 0% (0) | 1% (1) | 7% (6) | 17% (14) | 4% (3) | 19% (16) | 2% (2) |

18. When is the most effective time to learn about mindsets?

| A combination of PSHCE and registration sessions | Only in PSHCE | Only in registration |
|---|---|---|
| 12% (10) | 83% (70) | 5% (4) |

Network Analysis (qualitative data from second student questionnaire: research cycle 2)

Question 7: Please explain your answer to question 6. How has the Mindset work affected your views?

Yes (16 responses)

| |
|---|
| It has encouraged me to adopt a growth mindset / think more positively about the learning process (6 responses)<br><br>'Because now I understand the mindsets and which mindset to have. I take on a growth mindset now'.<br>'It has helped me to change how I think about learning and helped me to improve how I learn'.<br>'It helped me to open my mind about the two different mindsets. I now know the advantages of the growth mindset and why it's bad to have a fixed mindset, so I have a growth mindset now'.<br>'It made me realize what mindset means and how I can improve the way I see stuff'. |
| It has helped to make me more resilient (4 responses)<br><br>'It has made me more positive in terms of receiving feedback and making mistakes. It has really made me reflect on my actions to learning and has been incredibly useful'.<br>'It has made my response to mistakes and errors more positive; I now see them as a learning curve and necessary to learn'.<br>'When I find something hard I keep on persevering'.<br>'It has made me think more carefully about how I learn and how I could improve how I learn things. I didn't previously think that changing how you think about failure could affect your learning, but now I worry less about failure'. |
| It has changed my view of effort (3 responses)<br><br>'I now put more effort into my work so that I can improve'.<br>'I have decided I should change the way that I look at work given to me; I want to welcome challenges rather than avoid them'.<br>'This mindset work has assured me that hard work will make me successful, so I have increased my effort'. |
| It has changed my perspective about the nature of intelligence (3 responses)<br><br>'Before I was unsure about whether intelligence was something you are born with but now I am certain that intelligence is something you can develop over time and the more you work on something the better you will become'.<br>'Because I have learnt about the science behind the brain and intelligence; I know that you are not born intelligent'.<br>'It has changed my view about what it means to be intelligent'. |

To a Certain Extent (51 responses)

I now try to adopt a growth mindset (22 students)

'It has shown me the difference between growth mindsets and fixed mindsets. I now take on a growth mindset'.
'I have realised that I have a mixture of a growth and fixed mindset and I now know how to improve my fixed mindset to become more growth'.
'I have understood the fact the having a growth mindset is helpful and if you able to change your mindset from fixed to growth, obstacles would be easier to overcome in the future'.
'I feel that I somewhat knew about the different kinds of mindsets, however the mindset work in PSHCE did help me to distinguish between them more and make them clearer. I try to adopt a growth mindset now'.
'The mindset work helped me to have a better understanding of what a good growth mindset is, as well as realise the benefits of it'.
'It helped me to maintain a growth mindset'.
'It has affected my views as I now know the effects of having a fixed mindset and how a growth mindset is much better for me'.

It has changed the way that I view intelligence (10 responses)

'The mindset work has made me believe that you can develop intelligence throughout your life'.
'I now know that intelligence can be changed'.
'I have learned that talent is made, not born, and that we can all improve our intelligence'.
'I have realized that someone's intelligence can be changed if they work hard and set goals for themselves'.

It has changed my views about effort and the comfort zone (10 responses)

'It has made me work harder to achieve better results'.
'My prior views have been backed up by the work we have done and it has given me a certain confidence boost as well as a reminder that I should always aim to challenge myself and work hard to stretch the capacity of my brain'.
'I know more about making an effort and improving now'.
'I've been wanting to do more new things and leave my comfort zone more'.
'I now feel that trying out new things is a must'.

It has made me more resilient (9 responses)

'It has affected the way I react to criticism; I appreciate it more'.
'It has made me think more about my reactions to failure and success and how I can learn from the things that I get wrong'.
'It's made me realise that learning from mistakes is good'.

No (17 responses)

| |
|---|
| I reject the idea that a growth mindset is more beneficial than a fixed mindset (11 responses)<br><br>'It hasn't affected my views because I still strongly believe that a fixed mindset is not a negative thing'.<br>'It has not affected my views as I don't like the idea of a growth mindset'.<br>'It has not, it was an absolute waste of my time. I don't think it is better to have a growth mindset'.<br>'I don't agree that a fixed mindset is better'. |
| I already adopted a growth mindset approach, before the scheme of work (3 responses)<br><br>'I already had a growth mindset and therefore I didn't need to change it'.<br>'My view has stayed the same. I always had a growth mindset'.<br>'I knew all the concepts of the idea of a growth mindset already and already used them'. |
| The idea of the two mindsets is not complex enough to apply to the range of personalities (3 responses)<br>'The mindset views seemed opinionated to me. It seemed like they were saying that there is just good and bad and that's all there is to it. I also didn't find it useful because it wasn't specific to me or personalities like mine.'<br>'I believe that a person does not have a certain type of mindset, but just changes. I think that it would be wrong to class people differently into two different mindsets'.<br>'I feel it was too cut and dry and therefore it did not benefit me'. |

Question 8: Which aspects of your PSHCE lesson on mindsets did you find the most helpful / effective for your learning?

| |
|---|
| Learning about the two different mindsets (40 responses)<br><br>'Learning how to have a growth mindset'.<br>'I found learning about the qualities of a growth mindset useful because then I can apply it to my everyday life'.<br>'Strategies to help adopt a growth mindset'.<br>'Learning about how different mindsets affect your learning process and how to have a growth mindset'.<br>'Learning about the closed and open mind set, because it helped to remind me that I need to keep an open mind'.<br>'I think it was good for everyone to know what kind of mindset they had and how to alter it in order to allow more development of skills to happen'.<br>'How to have a growth mindset rather than a fixed mindset'.<br>'Learning about the differences between the 2 mindsets and how you can change from a fixed mindset to a growth mindset'.<br>'I found it most useful learning about fixed and growth mindsets as I found it useful to see which category I fit into and sometimes I am guilty of having a fixed mindset, however ,this lesson showed me exactly what I need to do to change this and have a more positive outlook on learning'. |

‘Learning about ways to adopt a growth mindset and the differences between a fixed and growth mindset and which thoughts I could recognise were part of a fixed mindset and try to combat’.
‘I found it most helpful in terms of learning about how the types of mindset and how they are useful in improving your academic progress’.
‘I found the discussion on different kinds of mindset helpful as it made me consider what mindset I have and how I could start changing it’.

Real life examples (12 responses)

‘I found it helpful to know about the people who changed their mindset and it helped them achieve something incredible’.
‘Reading about other famous people's mindsets and how it helped them achieve their goals’.
‘My favourite bit was reading the stories of people who had had a fixed mindset, for example Michael Jordan - I found this very interesting and inspirational’.
‘Learning about now other people got to success with a growth mindset’.
‘Reading the stories about how people's life may have changed, but how they helped themselves recover. For example one of the stories was about becoming paralyzed but this person continuously did exercises to help their body move, and the outcome of all this motivation’.
‘The most effective and useful part of the mindset sessions for me was that there were many real life examples that we could use to understand the topic better’.

Learning scientific explanations for increased ability (12 responses)

‘I found it interesting how our brains work like muscles in terms of growing neurons when we learn’.
‘I found the neurons forming links when you exercise your brain most effective’.
‘Learning about how the brain works like a muscle with all the neurons connecting’.
‘The information on how challenges affects the neurons in your brain. The latter really proved to me that growing your brain is scientifically possible’.
‘The scientific proof that your brain can grow helped to back it up’.
‘The research made by scientists helped me to understand more about growth and fixed mindsets so that aspect of the PSHCE lesson consolidated my knowledge and views’.
‘I found it very useful to learn how I can develop my brain and about the science behind learning and trying new things. I now understand how I can improve my learning and thus learn more efficiently in my lessons’.
‘I found the research into intelligence and how to develop our brain the most helpful, because otherwise I would have been a lot more sceptical than I am about it, as science and research made it make more sense’.

The video (11 responses)

‘I found that the videos were most helpful’.
‘The videos because they were interesting’.
‘Watching the video clips’.
‘I enjoyed the videos’.
‘I found the videos most helpful as it they really helped my understanding and made the lesson a lot more interesting’.

| |
|---|
| Class discussion/ debate (8 responses)<br><br>'We all had a discussion as a class, which I found much more interesting and useful than working on sheets'.<br>'The debate we had as a form on intelligence, as all views were accepted'.<br>'Discussion'.<br>'The class discussions about how different mindsets affect learning progress'.<br>'The class discussions'. |
| The emphasis on effort (1 response)<br><br>'I found the encouragement to always try and not give up useful. This is because it was good to hear something different to the usual things you hear at school about how it's best to get A*s'. |

9. What suggestions (if any) would you make to improve the lesson, in order to help future year groups to learn about mindsets?

| |
|---|
| No suggestions (18 responses)<br><br>'None - as I really enjoyed the lesson and learned a lot from it too'.<br>'I thought they were really good as there was a balanced mix of discussion, powerpoint, videos etc'.<br>'I do not have any suggestions'. |
| Emphasise the ambiguity of the mindsets and changeable nature of the mindsets (26 responses)<br><br>'Don't portray a fixed mindset as such a negative thing. It can hold a person back but it was portrayed very negatively in the powerpoint. I think this made the people in our class with fixed mindsets quite flustered as they thought there was something wrong with them'.<br>'Don't make the mindsets sound so definite, say how some people could have qualities of both mindsets'.<br>'Maybe the information should be presented in a less black and white way, showing a spectrum of how we can have a partially fixed mindset, and a partially growth mindset'.<br>'Towards the beginning, the fixed mindset was portrayed in an extremely negative way and many of us students felt quite defensive about the way we learn as we were continuously being told that it was 'wrong' or 'bad.' This could have been handled in a better way, and we should have been educated on how to improve it as quickly as possible, instead of waiting a couple of days until we started the sessions in registration'.<br>'In order to improve the lesson, I would suggest including more about how to change your mindset, and less about how having a fixed mindset is a negative thing. This is because, in my opinion, most people would be in between growth and fixed mindsets, however, the lessons did not make this clear, and suggested that most people are either one or the other. This wasn't very helpful because most of us focus on more of the negative aspects of ourselves, so considered ourselves of more of a fixed mindset, and most of the descriptions of the fixed mindsets were quite negative and made us quite defensive of the fixed mindset and made us more closed minded towards changing your mindset'.<br>'At some points in the lesson it seemed to be talking about the mindsets as if they were opposing teams and only the growth mindsets were good. I think that if it was presented more as a |

spectrum from fixed to growth mindsets people would have been more open about their mindset'.
'The lesson was helpful but people's minds are so complex you can't just give two ideas and say this is wrong and this is right when you don't know how they think'.

<u>More interactive activities (15 responses)</u>

'Do more interactive things e.g. a quiz to keep things more interesting'.
'More activities'.
'Be a little more interactive'.
'More interesting'.
'Make the sessions more interactive so that the students aren't just listening to a teacher read off the whiteboard and being told what to think, include more pair or group work'.
'More interactive activities (games) or worksheets'.
'Games that tested our different mindsets, this would make the lessons more fun and effective for those with a fixed mindset'.
'Possibly games that test our different mindsets'.

<u>More use of videos (9 responses)</u>

'To watch more videos to help with people's understandings'.
'I would show some videos about how people's life may have changed, not just through stories. This is because as a student we tend to get a bit bored and distracted just reading stories'.
'More videos as they are more effective'.
'More videos, as the video about Will Smith was interesting'.
'Watch more videos as I think they are quite engaging'.

<u>More discussion (7 responses)</u>

'More discussions about mindsets and what we think about natural intelligence'.
'More discussions'.
'More discussion time to help people think about the lesson'.
'Some more discussion time'.
'I would have more debate time to discuss the issues'.

<u>Explain how to adopt a growth mindset (4 responses)</u>

'Try to explain how we can adopt a growth mindset'.
'Focus more on how to achieve a growth mindset and perhaps give opportunities to apply a growth mindset to a situation actively, for example giving us difficult puzzles etc. to solve which require us to think hard. Examples could be killer sudoku, rubiks cube, cryptic crosswords'.
'Definitely more about how to change the mindsets. Because whilst it's good to learn about these two mindsets, I didn't feel that I knew how to actually change the mindsets'.

<u>More background information about what causes people to adopt particular mindsets (3 responses)</u>

'I would like to know more about the reasoning behind whether someone has a fixed or growth mindset'.
'Hearing what makes people have these mindsets in the first place'.
'Discussing further what puts people into specific mindsets.'

Less information on the powerpoints (2 responses)

'Less writing on the powerpoints because some points were in a bit too much detail which wasn't very necessary and it was quite hard to process all the information'.
'Make the powerpoint shorter'.

Question 10: Which aspects of your registration session on *Adopting a Growth Mindset* did you find the most helpful / effective for your learning?

The strategies helped me to change my mindset / helped me to adjust my thinking (51 responses)

'I started to actually think about my mindset and how I view things so this session definitely helped me think about how I could also change my mindset to be more positive'.
'How to change my attitude to adopt a growth mindset'.
'Learning about the different strategies you can use to get and maintain a growth mindset'.
'I think it was helpful in the way that it was good to know that you can change your mindset and can improve in new skills'.
'It helped me see how I can achieve a growth mindset'.
'Being told that it is possible to change your mindset and that your level of intelligence can also be improved through hard work and exercising your brain'.
'I found it really useful to learn how to change my occasional negative mentality toward learning and know exactly how to become more positive'.
'I found it helpful learning about how to have a growth mindset so that we could try to apply it to our own lives'.
'The realistic strategies one could take to adopt a growth mindset, and the emphasis that mindset is a choice'.
'The idea about choosing your own mindset was particularly interesting and a boost of confidence'.
'I think it is a good thing how the presentation took it in little steps in how to change you attitudes to learning. Overall it was informative and interesting'.
'The most helpful thing for me was the instructions on how to change the way your mindset is, as I would like to have a growth mindset, and I feel that this helped me to start achieving this'.
'I found it quite helpful looking at ways to change your thought process to adopt a growth mindset and to progress more in subjects by not resting on your laurels, because I find that I often have the problems that I often think something is 'good enough', when in reality I should not have that attitude'.
'I liked that it gave 6 actual strategies that we could implement to change our mindsets. This was very practical and helpful'.
'I found knowing how to have an effective growth mindset the most helpful as I can apply this to my schoolwork'.

Class discussions (18 responses)

'I found having time to discuss things was very useful as it was good to hear from other people about how they might try and improve their mindset, and think about what works for them individually'.
'We were able to continue our discussion on the matter and recap the work that we did'.
'When we shared ideas about how to adopt a growth mindset'.

| |
|---|
| ‘The class discussions’. |
| The sheet / session resources (8 responses)<br><br>‘The sheet’.<br>‘The sheet’. |
| The Recap Quiz (5 responses)<br><br>‘The activities of sorting out and true and false statements helped me’.<br>‘It was useful to recap over the lesson and remember what we had learnt so that we can use it’.<br>‘Recollecting what we had learnt before’. |
| The use of the powerpoint (2 response)<br><br>‘The power point and presentation were clear and easy to understand’. |

Question 11: What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

| |
|---|
| No suggestions (75 responses)<br><br>‘None- as this was one of my favourite lessons as it actually told us about the ways we can get a growth mind set so that we can help ourselves improve’.<br>‘I wouldn't make any changes’.<br>‘Nothing it was really good’.<br>‘I don't have any suggestions’. |
| Change the timing of the sessions (3 responses)<br><br>‘They were quite rushed at times, and because they were in so early in the morning, I think most people were less inclined to actually pay attention or take these ideas on board (myself included)’.<br>‘I think that they could have been slightly longer (although I do understand that there are time constraints)’.<br>‘There was not much time in the registrations’. |
| More detail about strategies / more strategies (2 responses)<br><br>‘Maybe more detail on all of the strategies, not just on the first two’.<br>‘More examples of how you can adopt a growth mindset’. |
| More about the difficulties or complexities of changing one’s mindset (2 responses)<br><br>‘I think, the lesson made changing one's mindset seem easier than it really is and should show that, in real life, it can be very difficult to change the way you think so quickly’.<br>‘To mention that it is not always easy to change one's mindset and takes a lot of time and say ways in which they can ensure a gradual, slow change into a growth mindset’. |

| |
|---|
| Include real life examples of people who have changed their mindset (1 response)<br><br>'Include real stories about how people's lives may have been changed. I find these interesting'. |
| Link the strategies back to the students' own experiences (1 response)<br><br>'Make people focus on their own lives to see what they have given up on or have worked hard to get'. |

Question 12: Which aspects of your registration session on *Effort and the Comfort Zone* did you find the most helpful / effective for your learning?

| |
|---|
| Learning about the importance of making and effort and working outside your comfort zone in order to learn and improve (36 responses)<br><br>'Understanding that effort can be good for the long term'.<br>'Learning how to get out of your comfort zone to achieve new things'.<br>'Learning about how being outside your comfort zone will benefit you greatly in the long run and open you up to more opportunities'.<br>'It was helpful showing that, if you really try hard, you can improve immensely in a skill'.<br>'How much an individual can improve when they put effort into what they are doing. Also the difference between effort and the fixed mindset and effort and a growth mindset'.<br>'Showing that effort does make a difference to results'.<br>'I found it helpful and effective that we were encouraged to leave our comfort zone, and to explore other options and to challenge ourselves'.<br>'I found it really helpful learning about how to make progress as sometimes I am a bit scared to try new things but now I know how much it will benefit my learning'.<br>'To always push yourself as that's how you learn best and improve. Always work your hardest in everything'.<br>'I learnt how you can always push yourself and challenge yourself in order to improve'.<br>'It was a really encouraging lesson that told me that it's fine to have to put in more work than others in order to obtain the same result. I also learnt some important things about working outside of your comfort zone'.<br>'I enjoyed knowing that putting in effort would pay off, as in real life situations that isn't always obvious'. |
| The examples of people who worked outside their comfort zone (21 responses)<br><br>'Learning about now other people got to success with a growth mindset'.<br>'Will Smith because the class appreciate that he is successful'.<br>'The famous people who have tackled obstacles in their life as some of those people I look up to and see as role models'.<br>'We were given specific, relevant real-life examples of inspiring people whose work ethics were that of a growth mindset and they showed to me that effort does allow you to achieve so much'.<br>'I enjoyed the video of Will Smith as it made the whole topic more entertaining and easier to understand how having a growth mindset really helps people achieve great things'. |

| |
|---|
| 'I found the examples of famous people who had overcome issues the most helpful, because it showed that it can work in real life, instead of just being an ideal that we should all work for that is not actually obtainable'.<br>'I like pushing myself and taking myself out of my comfort zone. Though the stories of actual people were inspirational and helped me realise how useful pushing my comfort zones is'. |
| <u>Learning how to set targets / apply the learning to their own circumstances (10 responses)</u><br><br>'How to set achievable targets for yourself'.<br>'Learning how to use targets in daily life'.<br>'It just helped a little bit with school life and setting high targets for myself'. |
| <u>The powerpoint (8 responses)</u><br><br>'The presentation'.<br>'I found the powerpoint really interesting and effective - especially the slide saying: "If it doesn't challenge you, it doesn't change you". I found this really interesting and easy to reflect on'.<br>'The information on the power-point was interesting'. |
| <u>The class discussions (6 responses)</u><br><br>'The class discussions'.<br>'The class discussions'.<br>'The class discussions'. |
| <u>The recap at the beginning of the session (3 responses)</u><br><br>'The reminder about how the brain works'.<br>'The recap on how the brain works'.<br>'Recollecting what we had previously learnt'. |

Question 13: What suggestions (if any) would you make to improve this session, in order to help future students to learn about Mindsets?

| |
|---|
| **<u>No suggestions (62 students)</u>**<br><br>'None- as I loved the lesson'.<br>'None, it was a good presentation with helpful information'.<br>'I wouldn't make any changes'.<br>'None'. |
| **<u>Change the type of activities (7 responses)</u>**<br><br>'Include games'.<br>'Add more activities for groups (possibly drama or something like that)'.<br>'Make it more interactive'.<br>'Make the lessons more interactive'.<br>'More interactive activities such as games and worksheets'. |

| |
|---|
| ‘To make it more fun and engaging’. |
| **More videos (6 responses)**<br><br>‘I think watching some videos about what people have to say, may help my learning a bit more’.<br>‘More videos of people talking about their goals and how they achieved them’.<br>‘More videos’.<br>‘Have more videos as a visual’. |
| **More guidance on how to move outside of your comfort zone (3 responses)**<br><br>‘More tips and techniques about what you can do’.<br>‘Maybe some more tips and techniques could be suggested to help us to apply it to our own lives’.<br>‘More tips and techniques to how we could apply it to ourselves’. |
| **More examples taken from real life (2 responses)**<br><br>‘Perhaps more videos/other pieces of media (e.g. excerpts from newspaper articles) used to show more examples’.<br>‘To see more on how more famous celebrities viewed effort and working out of their comfort zones’. |
| **More time for class discussions (2 responses)**<br><br>‘More time to discuss as a class’.<br>‘More discussion time’. |
| **Resources to help consolidate the learning (1 response)**<br><br>‘To have an information sheet on what we have learnt in class to file in our folders for future references’. |
| **More information about ambiguities / mixed feeling about effort (1 response)**<br><br>‘I would suggest that it also covered what people in the middle of the two mindsets think about effort, because I found that I had mixed opinions on effort from both the fixed mindset and the growth mindset, and I think that would be more useful as most people are between the two mindsets, instead of being one or the other’. |

Question 14: Which aspects of your registration session on *Resilience and Failure* did you find the most helpful / effective for your learning?

| |
|---|
| The examples of successful people who have overcome failure (33 responses)<br><br>‘Learning about successful people's experiences’.<br>‘Examples of people who have failed but got better’.<br>‘The videos about famous failures’.<br>‘Seeing the solutions and how to overcome problems that celebrities may have had’. |

| |
|---|
| ‘I thought it was helpful watching the video about famous people who had previous failed in their lives but carried on and became successful’.<br>‘I enjoyed learning about famous examples of people who had failed but persevered to reach their goal, it was very inspirational’.<br>‘I really liked seeing how many successful people were once 'failures' and I think it helped to put things into perspective’.<br>‘It showed me how many celebs had been through tough times too, and how everyone has to struggle in order to get what they want, so it made me want to work harder to achieve great things’.<br>‘The presentation (and certainly the videos and other famous people's personal experiences) was very encouraging on the subject, and leaves a lasting impact. I personally feel quite motivated to carry on through my failures and learn from them’.<br>‘The videos, as it proved to me that lots of people have developed such a good mindset towards failures and setbacks, and inspired me to try to be more like that’.<br>‘I enjoyed the videos because I found them inspiring and they put failure into perspective, helping us think about how failure can help us improve’.<br>‘The video of famous people who were told they were going to fail and then did amazing things because it was reassuring, to be honest’. |
| <u>The idea that failure can be motivational / a learning experience (16 responses)</u><br><br>‘It helped us to understand that failing is a marker to try harder not to give up’.<br>‘Learning that failure isn't always a bad thing’.<br>‘I found the slide on reactions to failures/setbacks depending on your mindset interesting as it put everything into perspective’.<br>‘The reactions, of growth mindsets and fixed mindsets, to failure’.<br>‘Reactions to failures and setbacks between the two mindsets’.<br>‘It really gave me a confidence boost and I found the concept beneficial to my attitude towards failure’. |
| <u>Promoting the idea of ‘grit’ (14 responses)</u><br><br>‘Grit was a new concept that I had not learned about before; it was useful’.<br>‘I thought the video helped me understand grit a lot’.<br>‘The grit video, people have obstacles but you can jump over them’.<br>‘The grit video’. |
| <u>Applying the ideas to my own life / experiences (11 responses)</u><br><br>‘I found it useful how I could apply it to schoolwork’.<br>‘I also thought that it was useful to tell us which thoughts we can try to have as part of a growth mindset when we encounter failure’.<br>‘I thought that the personal reflection was the most helpful part of the session, because it made us reflect on how we respond to failure and how we should change it. It also made a nice change from being told what to do in all of the sessions’.<br>‘It helped me try and think about failure in a different and more open minded way’. |
| <u>Class discussions (10 responses)</u><br><br>‘The class discussions helped me to get a better idea about what the views of other people in the class were’. |

‘The discussion’.
‘Discussion’.

Question 15: What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

None (78 responses)

‘None. I enjoyed the lesson’.
‘It was all good and interesting’.
‘I don't have any!’
‘None, it was an interesting presentation and I felt it helped my understanding of the topic’.
‘I wouldn't make any changes’.
‘I thought it was very inspiring’.

Change the timing (6 responses)

‘Don't do it in registrations as people don't really concentrate’.
‘Not in registration, too rushed’.
‘I think it would have been more productive if this had been discussed in a PSHCE lesson than in registration, as we didn't have much time in the registration session’.
‘Have more time for discussion’.

Question 16: Which aspects of your registration session on *Labelling and Feedback* did you find the most helpful / effective for your learning?

Learning about the negative effects of labelling: the information about the effects of stereotyping and about the self-fulfilling prophecy (33 responses)

‘I found it very interesting to learn about how stereotypes have been proven to subconsciously affect people’.
‘Learning about self-fulfilling prophecies’.
‘Learning about the effects of labelling and how it can cause people to give up was what I found the most helpful’.
‘Learning that you will become what you label yourself’.
‘I enjoyed learning about self-fulfilling prophecies because it made me realise that I don't need to fit in to the labels that people give me’.
‘I enjoyed learning about stereotypes and labels and the effect they have on performance and mindset’.
‘When we discussed how labelling people would change how they behave making the stereotype for them come true’.
‘Learning about how labels, stereotypes and the self-fulfilling prophecies affect us, but also from both sides, as in the fact we learnt the negatives and the positives’.

Class discussion (19 responses)

'The discussion'.
'The class discussions'.
'Talking in our groups'.
'The class discussion, as it helped me understand what other people thought about this issue as well'.
'The discussion we had on effects labels have on people was very interesting'.
'The class discussions made me aware of how common it is to negatively label yourself, which was useful because I can now try to avoid labelling myself and others'.

Learning how to use a growth mindset to reject / ignore labels (20 responses)

'Learning how to cope with labels for example if you worry about other people's opinions too much'.
'Learning that it is OK to go against what people say and if they label you, because you should follow what you think and not be scared to not do something just because you are scared of being labelled'.
'Learning how to stay positive and repel labels and stereotypes'.
'Learning about how to have a more growth mindset and how to approach labels differently'.
'Learning about how labels effect a person and how you can overcome them'.
'Learning about how the growth and fixed mindset relate to being labelled, and how you can take a growth mindset approach to labelling'.

All of the information in the presentation (12 responses)

'It was informative and the information was relevant'.
'I enjoyed the facts on the powerpoint interesting'.
'All of it'.
'The powerpoint'.
'The presentation'.

Question 17: What suggestions (if any) would you make to improve this session, in order to help future students to learn about mindsets?

**None (68 responses)**

'Nothing it was really good'.
'None, it was a good session'.
'I have no suggestions'.
'I don't have any suggestions, it was informative and helpful'.
'None'.
'Nothing'.

| |
|---|
| Change the timing (9 responses)<br><br>‘Have more discussions and not in registrations’.<br>‘Registrations are not a great time to do these’.<br>‘Not in registration’.<br>‘Don't do it in registration’.<br>‘More time for discussion’<br>‘Longer discussion time’.<br>‘I think that maybe having more discussions would be helpful’.<br>‘Carry out the session during a PSHCE lesson instead of registration so we are not distracted with upcoming tests etc.’ |
| Change the activity (4 responses)<br><br>‘Have a fun activity to include everybody’.<br>‘Have an activity to make it more interactive’.<br>‘Include a few more activities and games to make it interesting’. |
| Include more examples of a wider range of labels (3 responses)<br><br>‘I think if there were more examples of different labels. That would be quite useful’.<br>‘I would probably use more examples which have already been practiced by people as this gives a more real life aspect on the situation. Even though we have used quite a few, it would just be easier to understand the situation’.<br>‘Give a wider range of labels that can be used’. |

Question 19: Please explain your answer to question 18.

Only in PSHCE

| |
|---|
| Focus is improved in lesson time, in comparison to registration’ (35 responses)<br><br>‘Because people often don't concentrate during registrations and therefore won’t take on board what is being said. Whereas in PHSCE lessons, as it is in the afternoon, people concentrate more and actually see it as a lesson’.<br>‘Everybody is tired and distracted in the morning at registration and work take in any of the work we do’.<br>‘We are more focused as the lesson is dedicated to PHSCE than in registration’.<br>‘I think that the PSHCE lessons are the best time to learn about the mindsets, because in the morning we aren't always as alert and awake as we might be in the lessons’.<br>‘Most of us are quite tired in the mornings and may not process the information as well as usual’.<br>‘PSHCE lessons aren't first thing in the morning so I feel that everyone would probably take it in more’.<br>‘People focus better’. |
| There is more time to discuss and reflect in PSHCE (35 responses)<br><br>‘The time in registration was a bit rushed’.<br>‘We didn't really have time to do much in registration’. |

‘Sometimes we run out of time during registration or people arrive late so we aren't able to hear everyone's opinions’.
‘It allows longer for discussions and activities in which we can practice what has been said’.
‘Often in registration, we didn't have time to properly discuss the presentation, or even manage to properly look at the entire thing, meaning the educational value of it was undermined by the hurry to finish it in the 25 minutes’.
‘It is less hectic during the lessons. Doing it in registration is rushed. More content can be learnt in PSHCE lessons’.
‘It is a more suitable time frame’.

Only in Registration

Useful for refreshing memory (2 responses)

‘It seems reasonable to only learn about mindsets in registration as it gives a regular reminder, with a two week gap in between people can forget very easily’.
‘More effective if it is first thing in the morning’.

A combination of registration and PSHCE

The registrations helped to build on and consolidate the lesson (7 responses)

‘The registration sessions helped to consolidate my knowledge on mindsets so now I really remember it well. However, I feel that more learning should be weighted to the PSHCE lessons as they are longer so give more time to explore the topic in detail’.
‘The follow up registration sessions reminded me of the work we did in the PSHCE lessons, and help to consolidate my understanding’.
‘I think that the combination of PSHCE lessons and registration sessions mean that it's something that you're forced to think about multiple times, and overall it had a bigger impact on me than other things I've seen once in a PSHCE lesson and never again’.
‘It was effective for us as we got to go over what we learnt so it is stuck in our heads now’.

The timing of long and short sessions worked well (5 responses)

‘I thought that having it during registration meant that I had a more positive outlook to the day ahead of learning and I also found it very refreshing, but the PSHCE lesson gave us longer to absorb the concepts’.
‘We definitely needed the PSHCE lessons as we could not have learnt the definitions and what different mindsets are in a registration lesson. However the follow up activities took up a good amount of time for registration. They were also a good start to the day and inspired us to have a growth mindset throughout the day’.
‘I found the PHSCEE lesson useful because it gave us a substantial amount of time to discuss the topic and the registration sessions were good because it started our day with thinking about the mindsets which helped us try to improve them throughout the day’.
‘PSHCE lessons are longer so you have more time to think about what you are discussing and can dive deeper. However, having a mindset discussion at the beginning of the day will keep it in your mind and you can consciously try to apply any new mindsets you may want to try during the day’.

Coding Grid Two: Second Group Interview with students

The PSHCE Lesson

| Codes *(shorthand codes in brackets)*<br>Codes, derived from inductive construction in relation to research questions *(shorthand codes in brackets)* | Student 1 | Student 2 | Student 3 | Student 4 |
|---|---|---|---|---|
| Understanding the scientific e explanation for how the brain grows. *(Sci)* | | 6-7<br>18 | 5<br>11-14 | 3-4<br>10 |
| The use of real life examples in the scheme of work. *(R life e.g.)* | 20-21 | | | |
| The use of the powerpoint. *(ppt)* | | 80-84 | | 28 |
| The use of video clips. *(Vid)* | | | | 29-32 |
| Attitudes towards PSHCE. *(PSHCE)* | | 33-34 | | 35-40 |
| The role of the teacher.*(Teach)* | | 48-54<br>56 | | 55<br>57-62<br>64 |
| The importance of teaching about the fluidity and complexity of mindset *(Fluid).* | 68-73<br>86-88 | | 94-97 | 89-93 |
| The influence of gender on mindset. *(Gender)* | 104-108 | | | 98-103 |

The Registration Sessions

| **Codes *(shorthand codes in brackets)***<br>**Codes, derived from inductive construction in relation to research questions *(shorthand codes in brackets)*** | **Student 1** | **Student 2** | **Student 3** | **Student 4** |
|---|---|---|---|---|
| Attitudes towards registration. *(Reg)* | | | | 45-47 |
| The use of famous people as examples. *(Reg e.g.)* | 128 | 113-114<br>116-118<br>120<br>121 | 122-123 | 115 |
| Making an effort *(Reg eff.)* | 128-131<br>150-152 | 140-142 | | 132-135<br>137-139<br>143-147<br>153-158<br>160-172 |

The overall impact of the scheme of work

| | | | | |
|---|---|---|---|---|
| Definitions of intelligence *(Overall intel.)* | 176-178 | | 180-185 | |
| Changes in attitudes towards learning. *(Overall att. to learning)* | 194-195<br>198-201 | 187-188<br>202-205<br>207-213 | 225-300 | 189-193<br>215-223 |

Transcript of second group interview

**1Q: Did you learn anything from your PSHCE lesson about mindsets and, if so, what did you 2learn?**

**3Student4:** I think about the general sort of concept of growth and fixed mindsets and about how 4our brain works in terms of being a muscle; I didn't know that.

**5Student3:** I found that really interesting.

**6Student2:** The science behind it made it more real, I feel like, at least at this school, we can grasp 7topic better it better if there is some science behind it.

**8Q:** So you didn't realise that you can build up your brain, as you can a muscle by weightlifting. And 9also you said that it introduced the idea of the two mindsets. Do the rest of you agree with that?

**10Student4:** Yeah, the general concepts.

**11Student3:** Yeah, it kind of put it into context, I know that there is a fixed mindset and a growth 12mindset, but the fact that it's actually happening in your brain kind of made us all think that it can 13be very helpful. It's not just something tutors are saying just… that's made up; it's actually true 14and it actually can help you.

**15Q: So do you think that it's important to understand the science behind it because otherwise 16you don't really know what the whole theory is based on?**

**17All:** Yes.

**18Student2:** Without that it's just words, whereas here there's something we can look at.

**19Q: What was the most useful thing about the lesson? What helped your learning the most?**

**20Student1:** Talking to people and seeing when there was examples of people who improved and 21worked hard. People with growth mindsets. That was good to, like, see it in use.

**22Q:** Yeah, there were real life examples and I think
23(redacted due to anonymity)
24(redacted due to anonymity)

**25Student3:** We saw some on the powerpoint, and the yellow sheets.

**26Q: So the real life examples were useful. Was there anything else that was useful about this 27lesson?**

**28Student4:** I liked the powerpoint. I thought that was really interesting. I liked the video, although 29some people in the class with fixed mindsets, they were more negative towards it. Because they 30were just saying, 'well what's wrong with having a fixed mindest'? But I think that they 31misinterpreted the video. That was only was only a very small selection. I sort of look at it and 32view it differently to how they took it.

**33Student2:** I think the people with a fixed mindset were more closed minded about it. A lot of 34people go into PSHCE and there is a stigma about it; it's the boring pointless lesson

**35Student4:** Yeah, previously in PSHCE lessons, people go in wanting to be the devil's advocate, so 36to speak, because in the past, that has been the case and that has been necessary if we've been 37told something, for example, that we just don't agree with. And I think this lesson was completely

38different, which was really good because we were given information and we were allowed to form 39our own opinions, but the proportion of people who did that just hadn't opened their minds to 40what we were being told.

**41Q: Do you think that some people automatically have a negative reaction towards PSHCE?**

**42All:** Yes.

**43Q: And so do you feel that because this was a PSHCE lesson, that just affected the way they 44were?**

**45Student4:** I think people are the same, not quite so strongly, but they do even have that view on if 46you have to do something in registration because a lot of the time I think people's views are, 'oh I 47could just be doing homework'. So their view on it from the start might not be very good.

**48Student2:** At least in my case, when speakers from outside of school come in, it's, kind of like, 49easier to listen to them because obviously, out of genuine politeness, you have to listen to them, 50but they do that a lot so they know how to deliver their information well. So I find that … like … for 51myself and probably for others, they take in information better when it's from outside-of-school 52speakers. The form tutors, they do a good job of delivering the PSHCE lessons, but obviously it's 53not what they are exactly, it's not their area, so sometimes people become picky about what they 54say because if the teachers don't fully understand it then how can we?

**55Student 4:** It's more the knowledge that we, as students, know that that's not their area.

**56Student2:** And then, I find that, for them, it makes it harder.

**57Student4:** Some of the form tutors … it's not that my form tutor wasn't interested in it, because 58they were, but they didn't seem fully engaged with it. I feel like they were less enthusiastic than 59usual like about their subject lessons. That may have just been because there were some 60people that weren't listening, but there is that aspect of it, I know that's not the case with 61all of the form tutors, but I know that with one of the registration sessions, my tutor asked me and 62my friend to do it. We did the powerpoint. I don't know what they were doing.

**63Q: So which one did you deliver?**

**64Student4:** The effort and the comfort zone one.

**65Q: How can the PSHCE lesson be improved, so that we can use it with future year groups? You go, Student1 and then Student2 can go.**

**68Student1:** I'm not sure if this is what it is in real life, but in the powerpoint, it seemed that the 69mindsets were very, very definite, and if you do this then you're this and if you do this then your 70this, and people were, like, trying to fit themselves onto the label of which mindset, so I think that 71maybe if we have to do the behaviours or things that you actually can say, like are these 72tendencies are for this mindset and say it's just mindset, it's just mindset, it's just how you think, 73and not certain labels. It sounded very definite.

**74Q: That was something that came up in the questionnaires as well. Because actually you can 75change your mindset and you can also switch between mindsets depending on the situation and 76you can also have different mindsets in different areas.**

**77Student4:** I might have a fixed mindset in PSHCE!

**78Q: Was there anything else that you think we could do to help other students with their 79learning about mindsets?**

**80Student2:** Possibly have a bit less writing on the powerpoints, because I found that on a 81powerpoint, if there's too much information, you sort of skim over it and you can miss important 82information or sort of, it might be better if the more important general points are on the 83powerpoint and we could perhaps be given a sheet of information. That way I think that I would 84take in information better.

**85Q**: Is there anything else that we haven't mentioned?

**86Student 1:** Maybe just emphasise more that you can change your mindset, like, if you just put 87effort in, it's not going to take years for you to switch your mindset. It just switches; it's just a 88mindset.

**89Student4**: Having a fixed mindset isn't always a negative thing. I don't tend to have a fixed 90mindset, but some people were saying: "I have a fixed mindset but I think that's a great thing". 91That's just perspective. The word "growth" automatically has positive connotations, whereas the 92word "fixed", do you know what I mean, the words themselves have connotations before you 93even start telling people what it's about.

**94Student3:** Some people were getting quite defensive about fixed mindsets because it was coming 95across as if it was a really bad thing. It's not really the from tutor's fault, but it came across as it's 96really bad to have that kind of mindset and you should all aim be aiming for a growth mindset. So 97people were getting a bit – it should be a mix – not one thing or the other.

**98Student4:** At this school, I think there are a lot of fixed mindsets, because a) we're all quite 99intelligent in terms of demographics and girls are more likely to have, I could be wrong, but I feel 100girls are more likely to have a fixed mindset than boys.

**101Q: That's interesting.**

**102Student 4:** You know the video I told you about, which I don't know what it was called, the Ted 103Talk one, it went into that.

**104Student 1:** Growth mindset if you are always trying new things I think girls are more like open. 105But when you are always checking yourself to make sure you are improving, that's a fixed 106mindset and girls do that a lot more. So they have, like, bits from both and I think that with the 107powerpoint, people were getting quite defensive. If they had a fixed mindset, they were 108thinking, "oh, this is so band and I need to get a growth mindset".

**109Q: Were the mindset registration sessions useful? If so, how?**

**110Student4:** Yeah, particularly the one about effort. I thought it was good.

**111Student1:** I found it interesting.

**112Q: What about it was useful?**

**113Student2:** I think that it was good that there were examples, celebrities and that way they can, 114well not exactly relate, but -

**115Student4:** It's quite relevant to us.

**116Student 2:** Yeah, you sort of, maybe, take in the information a bit better because if someone 117says … I don't know … I feel like they would remember the information, possibly, a bit better if 118they have it relate to someone they know.

**119Q:** Yes, so the examples of Mia Hamm and Christopher Reeve were useful. What else?

**120Student 2:** They were quite, like, inspirational as well, especially the Christopher Reeve, I never 121knew that myself.

**122Student 3:** It kind of makes you think as well about the difference it can make, just changing your 123mindset.

**124Q: Can you suggest any ways that the sessions could be improved?**

**125Student2:** I they were good, in terms of the information and I also liked the recap in the effort 126one about how the brain works as well.

**127Q: Student1, did you want to say anything?**

**128Student1:** The examples were really good; they were good to relate to, but where it says about 129comfort zone, it makes it sound like you have to go out of your comfort zone to make an effort. 130But if you are making an effort to do something, it should be in your comfort zone because you 131are going to do it. It should be comfortable for you to be making an effort.

**132Student4:** In our lesson, because me and my friend were leading it, there was more opportunity 133for people to speak out and they were saying: 'well, what is effort?' and that was something 134that we had a discussion about because one person said, 'well my best effort that's like x or y 135trying their normal effort' so that's something that I found interesting.

**136Q: So people had different interpretations of what it means to make an effort?**

**137Student 4:** Yeah and I think someone said: 'my teacher said that I wasn't making an effort, but I 138tried really hard on that, whereas my friend next to me hadn't made a big effort for her, but she 139did really well'. So it bringing intelligence into it and natural ability.

**140Student2:** That actually brings us to reports, where there's an effort grade. That can actually be, 141I don't know, sometimes I feel like there's as subject that I try really hard in, but I only get like, 142effort 2 or 3.

**143Student 4:** I make effort in all subjects, but in one subject I sit by this person and she makes an 144incredible … she doesn't have a social life, in terms of school work, her effort is through the roof, 145but she complained to me that: 'I sit by you in that subject, and you've got a higher effort than 146me, but I spent the whole of my free time doing that'. And I said, 'that doesn't mean I don't put 147effort in, it means that I don't spend all of my free time doing that'.

**148Q: So do you think that sometimes your teachers' interpretations of your effort level are not 149what you would say?**

**150Student1:** It's not comparable with everyone else, the when you put effort in, you are working to 151best you can work and if someone is working less than they can normally do, they are still 152making an effort.

**153Student4:** Yeah, for one subject, a student brought in an A1 sized poster where she'd hand 154painted (redacted) to make them into red blood cells. It was an amazing poster, she'd spent a lot 555of time one it, but I knew that that weekend I was on a Brownie pack holiday, so I tried the best I 156could to make an A4 sized poster, which is what had been asked of us. And I thought, 'well 157that's exactly what I've done; I've spent a fair amount of time on it; that should be ok'. There 158are lots of different factors.

**159Student2:** Yes, time and effort is not comparable between people.

**160Student4:** Yeah, people cannot always spend the same amount of time on things. We've just 161had to hand in a (redacted) essay and it's genuinely frustrating; the whole of this weekend, I was 162practising for a music exam that I had on Monday and the previous two weekends, I was helping 163out on a Brownie holiday and I was on a Duke of Edinburgh thing, so I did not have the time in 164those weekends to write my (redacted) essay, but I then spent lots of effort on Monday night 165having to write it all in one go. That's not how I wanted to do it and I'd been able to plan, 166but I sat there and I made loads of effort on that Monday night. And then when we handed 167them in on the Tuesday, there were people in our class who still hadn't done them, and I asked 168why they hadn't done them and they said that they had had the time but they couldn't be 169bothered to put the effort in. I think that frustrates quite a lot of people because they have the 170time but they don't have the effort, whereas I put the effort in but I didn't have the time and 171these people are going to hand it in a few days later, the teacher won't know that they haven't 172done it.

**173Student2:** With us, like, we get our work done, but then it's so stressful, but afterwards it's done, 174but other people get away with not handing work in.

**175Q: Do you feel that this work changed your view of intelligence and what intelligence is?**

**176Student 1:** It strengthened it. It enhanced it because I knew that if you practice then you'll get 177better, but with the brain, the science behind it, the examples and the things you can do to 178switch mindsets and improve, that enhanced it.

**179Q: What do the rest of you think about that? Student3?**

**180Student 3:** I always thought intelligence was linked to effort but now I know that the more effort 181you put in, the more neurons will connect, and it will help you to become more intelligent. I did 182know there was a link but now I actually know that there is a connection the two and you can 183become more intelligent. Now I know that there is a link and you can actually become more 184intelligent. Normally if you put more effort in and you do it with you full heart and you know you 185want to get better, you probably will improve.

**186Q: Student2, did it change your views in any way?**

**187Student2:** I felt pretty much what I felt before, but knowing more information and sort of being 188… yeah, basically it enhanced and solidified what I felt before.

**189Student 4:** I'm quite similar to Student2 in the sense that I went in with quite a set opinion, and 190the information that was given helped me to look at that opinion that I had and I thought: 191'Yeah that's a good opinion to have', but I do know in my class definitely people thought: 'Oh, I 192didn't realise that'. It wasn't everyone that was like, me; some people definitely had their 193opinions changed.

**194Student1:** It made me more aware of it. I had those views but I wouldn't always put them into 195practice, but it's made me more aware of it and I will think of it more often.

**196Q: Well that leads on to my next question: will this work change your approach to learning in 197the future? Let's go around, Student1, what do you think?**

**198Student1:** I think yes, because even though I do try to put all my effort into every subject , 199sometimes I don't , even though I try my best to all they time and this has made me more aware 200of it. I will probably always do it now, even thought I had that opinion I wasn't aware of it all the 201time, but because I've had this, I am now.

**202Student2:** I feel like it probably does help. Before, my approach would be: 'I'm rubbish, but 203that's ok because I'll work on it.' So I go from fixed to growth. I didn't have words clear for the 204different mindsets before, that's something that I did. So, I feel that now I think about it in a 205more open way rather than jumping to conclusions.

**206Q: And what would the conclusion be?**

**207Student2:** That I'm rubbish at something, which I still do think, but I feel like I've been looking at 208more different ways to approach something that I want to improve in. Recently I didn't do well 209in two (redacted) tests and I didn't feel so great about it because I hadn't done very well, but 210 I went to talk to the teacher and they went over it with me and I was thinking I could do more 211practice and ask them to make some of those questions and just generally I've been trying to 212work on it more, not giving up or going home thinking: 'Oh I'm so rubbish I'm going to fail at 213everything', which were my initial thoughts but then I decided to keep working on it.

**214Q: What about you, Student4?**

**215Student4:** I think they have really summed up everything! I think it's that knowledge that if you 216know that there's something that going to be difficult, you can approach it with a growth 217mindset, knowing what a growth mindset is and how that's going to help you. That general view 218of positivity to challenges and to new and difficult work is really helpful when you are trying to 219approach a piece of work. Also, if I have got a pile of homework to do, I usually go for the easiest 220thing first because I think I can get that done first and then go on to the harder piece of 221homework, and it is usually the hardest homework that will take the most time, whereas now I 222am more aware that it would be better if I did the challenging work first because this will help 223me more.

**224Q: What about you Student3?**

**225Student 3:** In lessons sometimes when you are in situation where you just don't get it, I usually 226get quite frustrated with myself, I wonder why I can't do it, but this has got me to think: 'Oh, it 227can only get better; it's fine'. And sometimes I go home and I go over stuff thinking that maybe 228I'll get better, so rather than just getting annoyed with myself, it has helped me to keep my mind 229open and think it's fine, it's not the end of the world that I can't do this sum, or whatever the 300work may be.

Network analysis of teacher questionnaire

**1. Which aspects of the Mindset PSHCE lesson do you find to be the most effective for the students' learning?**

| |
|---|
| **The range of resources and activities (5 responses)**<br><br>'Students responded well to the resources and activities'.<br>'Materials were easily accessed and current students enjoyed the tasks and engaged well with them'.<br>'There were plenty of activities so the lesson moved on quickly / with a good pace'.<br>'The powerpoint was excellent and made the lesson easy to deliver and there was plenty of material for the lesson'.<br>'The lesson contained a variety of different learning styles, but also provided the opportunity for a lot of information to be grasped by the students in just an hour'. |
| **Changing the students' perspectives (2 responses)**<br><br>'It made the students aware of a topic that they had never reflected on before'.<br>'The lesson showed the students that the mindset work was based on extensive research by experts, and provided them with evidence to support the fact that a positive growth mindset could make a difference to them'. |
| **The case studies (1 response)**<br><br>'The case studies of individuals from business, sport, entertainment etc. particularly worked well for both students and me – made it easy to equate the theoretical ideas to real life situations'. |
| **The videos (1 response)**<br><br>'Students liked the videos'. |

**2.Can you suggest any improvements for this session?**

| |
|---|
| **No suggestions (2 responses)** |
| **Improvements to the case studies (1 response)**<br><br>'Some of the celebrity case studies are familiar to a US audience. British individuals may have even more appeal'. |
| **Improvements to the powerpoint 1 (response)**<br><br>'Lots of information on the powerpoint could encourage reading it off the screen. Is there any way around this?' |

| **Amendments to the material (1 response)** |
|---|
| 'There may have been too much material to cover in an hour, but I allowed quite a lot of debate and discussion and so could easily have cut that down'. |

**3.Which aspects of the session *Adopting a Growth Mindset* do you find to be the most effective for the students' learning?**

| **Practical suggestions for students to use to change their mindset (3 responses)** |
|---|
| 'Practical suggestions for changes students can make in their own lives'.<br>'This session encouraged students to see that they could change their own mindset – it was within their power to make this change'.<br>'The practical suggestions worked well'. |
| **The recap rom the PSHCE lesson (2 responses)** |
| 'Useful recap from the PSHCE lesson'.<br>'It got them to discuss what we had done previously and it was a good recap'. |

**4.Can you suggest any improvements for this session?**

| **No suggestions (4 responses)** |
|---|
| **Changes to the timing (1 response)** |
| There was quite a lot of material and it was a rush to get through. |

**5.Which aspects of the session *Effort and the Comfort Zone* do you find to be the most effective for the students' learning?**

| **The use of real life examples (3 responses)** |
|---|
| 'Students like the Will Smith video'.<br>'The examples were useful'.<br>'Real examples were used to show how people who had worked outside their comfort zone made better progress as a result'. |
| **Relevance and application of the content to the students context (two responses)** |
| 'This is a particularly relevant task for our students who do not like tasking risks and are much happier working within their comfort zone'. |

| |
|---|
| 'The students had to engage with this concept by settling themselves targets to make them work outside their comfort zone'. |
| **The content followed on well from the previous sessions (1 response)**<br><br>'Built on previous sessions well'. |

**6.Can you suggest any improvements for this session?**

| |
|---|
| **No suggestions (2 responses)** |
| **Issues around timing (2 responses)**<br><br>'In general it was difficult to get much sense of continuity with the registration activities because of the gaps between doing sessions and time pressure / interruptions'.<br>'Not enough time to get through everything on the powerpoint'. |
| **The need for follow up (1 response)**<br><br>'SMART target setting not engaged with that well as they were assuming it would not be followed up'. |

**7.Which aspects of the session *Resilience and Failure* do you find to be the most effective for the students' learning?**

| |
|---|
| **The range of activities (2 responses)**<br><br>'The mid map activity where students had to make note of famous examples of people who made mistake and were able to further improve as a result (as well as ordinary people) allowed students to see that it is OK to make mistakes'.<br>'The final activity in which students had to write about a struggle they had had in able to allow them to overcome and obstacle and the advice they would give to a Year 7 would hopefully allow them to begin to realise that they have learnt by making mistakes in the past. Year 7s reading these letters would be introduced to the idea that there is a good way to view failure – some will have come across this concept in Primary school so it will be good to remind them of what they have learnt in the past and build upon their existing knowledge'. |
| **The relevance of the topic to the students (1 response)**<br><br>'This was a really well targeted lesson as students at this school do not like failure and do not yet see it as part of a journey towards being able to fulfil their potential'. |
| **Discussion 1 response)** |

| |
|---|
| ‘The session prompted some useful and thoughtful discussion’. |
| **The videos1 response)**<br><br>‘They enjoyed the different videos’. |

**8.Can you suggest any improvements for this session?**

| |
|---|
| **No suggestions (5 responses)** |

**9.Which aspects of the session *Labelling* do you find to be the most effective for the students’ learning?**

| |
|---|
| **Activities led to debate / discussion (4 responses)**<br><br>‘There was good discussion and it led to some very interesting debates (e.g. about stereotypes)’.<br>‘The students were really engaged by the discussion about stereotyping’.<br>‘The subject matter struck a chord with students and they enjoyed discussing this issue’.<br>‘Prompted interesting class discussions’. |
| **Relevance to the students (1 response)**<br><br>‘The activities in this lesson allowed students to consider the fact that if they allow themselves to think they can’t do something, then this can become a self-fulfilling prophecy – food for thought for some of them at this school’. |

**10.Can you suggest any improvements for this session?**

| |
|---|
| **No suggestions (5 responses)** |

**11.Are there any other strengths in the scheme of work that you would like to mention?**

| |
|---|
| **No other comments (4 responses)** |
| **Overall strength of the scheme of work (1 response)**<br><br>‘This is a fantastically researched and organised set of lessons which introduce a concept that the students may not have come across before. The way it has been presented shows the students that it is within their power to act upon what they have learnt and really benefit from the change in mindset’. |

**12.Do you have any other comments or suggestions for improvement for the scheme of work as a whole?**

| |
|---|
| **The importance of follow-up (1 response)**<br><br>'There is a lot of information to take in and there is a danger that while students will understand the ideas and their relevance while they are covering the sessions, it is possible that they will then forget the importance of this work unless it is revisited. For example, if they set themselves targets in registration session 2, it wold be useful to plan in a follow up to revisit those targets and see if they have achieved them and discuss the difference it has made to them'. |
| **The wider context of the school (1 response)**<br><br>'These concepts can be incorporated into our already existing culture of target setting science it shows pupils that a growth mindset when setting targets can lead to real progress being made'. |
| **The importance of promoting the value of mindset work to teachers (2 responses)**<br><br>'It is also vitally important that the staff delivering the material have taken the time to engage with the material so that they can convey the importance and relevance of It'.<br>'If real change is going to be seen, there is a need to raise the profile of this work within the school (e.g. through staff inset) so that staff can understand it fully. This would then ensure that it is not a standalone activity but is then reinforced in lessons. How many staff model fixed mindsets by saying things like "I am not good at baking or I could never do that?!"' |
| **No other comments (1 response)** |