

**An investigation into the use and possible impact of a growth mindset on children in Key
Stage 2**

by

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Abstract

This research project investigates possible effects a growth mindset could have on children in Key Stage 2 in terms of their academic achievement as well as mental health. The research for this project has taken place in a school that has started to implement the ethos of a growth mindset in 2015. Information on children's achievement and mental health, strategies implemented and teacher's opinions have been gathered through semi-structured observations and interviews, questionnaires and data analysis. The findings have shown that the staff and children believe that a growth mindset can influence academic achievement and wellbeing positively, however, the school's achievement has only increased slightly, leaving doubts about the effectiveness of a growth mindset. The research draws recommendations from its findings.

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Research Issue

People holding a growth mindset believe that intelligence is not fixed and that targeted effort can support them in persevering through challenges (Blackwell, Trzesniewski and Dweck, 2007; Burnette et al., 2013). This research aimed to understand more about how such an incremental belief affects children academically and whether this could contribute positively to their mental health. The nature of the project is interpretivist as each person would bring their own understanding to this research, making a definite answer unlikely (Walliman 2005). This work built upon the research proposal submitted as part of the module '5PE010 - How to Use Research to Inform Practice' (Sanetra, 2017).

Justification

The focus on a child's development and well-being has increased due to factors created by changes in society, such as the use of technology, which can have a negative impact on children's development if used excessively (Taylor, 2012). According to the World Health Organisation (WHO, 2017), "10-20% of children and adolescents" suffer under mental disorders worldwide.

A report by the Office for National Statistics in 2014 states that "9.8% of children and young people between the ages of 5 and 16 have a clinically diagnosed mental disorder" while the Centre for Mental Health (2012, p.6) claims that "a further 15% have less severe problems that put them at increased risk" (Department for Education, 2014). To reduce these figures, the government released non-statutory guidance, emphasising schools' responsibilities in regard to their pupils' well-being and proposing strategies on how to promote mental health (DfE, 2016). However, for a school to be judged "outstanding" by Ofsted they should only teach how to 'make informed choices about...mental well-being" (Ofsted, 2016). According to Maslow, children cannot improve their school achievement if their psychological needs are not met (Noltemeyer, et al., 2012).

This places more responsibility on teachers. However, this is also an opportunity to further their own professional development, which links to Teacher Standard 3b; additionally, they learn what the barriers to learning are and how to "overcome these" which links to Teacher Standard 5b (DfE, 2013a). As they must hold a growth mindset themselves to pass it on, it could potentially bring benefits to their own mental health.

Literature Review

Children's wellbeing in the UK was found to be the worst amongst EU's wealthiest countries (UNICEF, 2015). Sweden, who ranked first, embeds social and emotional development into whole-school experiences and curriculum (Dunn, 2012). This is in contrast to the UK's 'knowledge-based' National Curriculum in which PSHE (Personal, social, health and economic education) was removed (DfE, 2013b; Morgan, 2015). Consequently, British educators are searching for timesaving ways to aid children's mental development so they grow into a 'whole student' (Waters, 2001, p.76). Many approaches have emerged but this paper is going to focus on the controversial concept of a growth mindset, a term coined by the psychologist Carol Dweck and implemented in many schools across the world. French (2016) warns that there are a variety of definitions and types of mindsets, but for this research project, the term mindset is described as a person's self-conception, the belief about oneself. Dweck (2012) identified two mindsets which influence (school) behaviour: a fixed mindset and a growth mindset. It is important to note that children can have elements of both mindsets; it depends on the subject or area looked at (Dweck, 2012).

Types of Mindsets

People with a fixed mindset, an entity theory of intelligence, are keen to prove their intelligence and aim to prevent setbacks by having low-performance goals as their lack of resilience creates a 'helpless response' which results in a withdrawal of effort, shifting the blame onto others, loss of motivation, anxiety and depressed feelings (Blackwell, Trzesniewski and Dweck, 2007, p.252; Kray and Haselhuhn, 2007; Dweck, 2012). They worry about seeming smart to others, are intimidated by others' success and ignore feedback as they believe that their work is purely a result of their intelligence and progression would be minimal or non-existent; they explain negative results with lack of trying (Blackwell, Trzesniewski and Dweck, 2007).

People holding a growth mindset, an incremental theory of intelligence, believe that effort and time will help them to get smarter. They are more resilient and persevere when they face challenges and overcome them with reflective learning processes and targeted effort; they believe that a person will be successful if challenges are embraced and mistakes are

learnt from (Blackwell, Trzesniewski and Dweck, 2007; Burnette et al., 2013). The theory of a growth mindset can be explained scientifically by looking at the research in neuroplasticity, which has shown that “intrinsic and extrinsic factors”, such as experiences and motivation, can form and reorganise the brain’s synaptic connections and therefore change it radically throughout life (Ganguly and Poo, 2013, p.729). Even though this means that intelligence is alterable, there are limits to what people can achieve as genetics determine the degree of neuroplasticity, which is the brain’s ability to adapt with learning; 50-80% of the IQ is inherited (Garlick, 2002). Explaining the brain’s malleability is the first step to developing a growth mindset in children; they need to understand that practice is vital for success. It also needs to be noted that, if a person with a growth mindset faces failure even despite increased effort and dedication, it may result in more serious psychological consequences and fall back into a deep-rooted fixed mindset as time and effort did not yield the desired results (Srivastava and Beer, 2005).

Impact of Mindsets

A growth mindset improves academic achievement regardless of socioeconomic status, according to Claro’s, Paunesku’s and Dweck’s (2016a) extensive, national study in Chile. It is a low-cost solution that can improve self-esteem, raise motivation, support in overcoming attainment gaps caused by, for example stereotyping or social background, lessen anxiety, depression, and supports individuals in recovering psychologically after a setback (Good, Aronson and Inzlicht, 2003; Blackwell, Trzesniewski and Dweck, 2007; Kessler et al., 2007; Tamir et al., 2007; Schroder et al., 2014; Andersen and Nielsen, 2016; Schleider and Weisz, 2016; Zeng, Hou and Peng, 2016). Tomsett (2017) sees a connection between academic achievement and mental health, stating that success positively influences children’s self-concepts, regardless of age. However, Blackwell et al. (2007) have found that a growth mindset has a better effect on grades in secondary school and was more apparent in later years; this could be a result of the major transitions children are facing in their lives - they are nearly twice as liable to mental health problems (Schleider, Abel and Weisz, 2015). Even though there is not as much research on its effect on primary children, these difficulties children are experiencing shortly after entering secondary school is a valid reason to start

teaching a growth mindset at an early age as Doidge (2007) states that the brain is more adaptable at that stage.

Despite the body of research that views Dweck's work positively, there are also many critics. Some teachers, who have implemented the approach, state that it did not make a difference in their classrooms (Education Week Research Center, 2016). Other research claims that it has little impact on student progress (Education Endowment Foundation (EEF), 2015; Hattie and Donoghue, 2016; Li and Bates, 2017). Nevertheless, some of these studies show certain weaknesses, for example - is an implementation of a growth mindset in an environment with fixed approaches, such as 'ability groups and peer comparison', put in place by teachers holding a 'false growth mindset', problematic (Dweck, 2016b; Hattie and Donoghue, 2016, p.6)? Teachers in the EEF's research received 2.5 days of training whereas effective CPD lasts at least 2 terms and it has also been found that several schools did not implement the work and that similar approaches were already used, which could have altered results (Cordingley et al., 2015; EEF, 2015; University of Portsmouth, 2016).

Growth Mindset in Education

There are many strategies that can be used to implement a growth mindset ethos. Research states that parents and school staff should both be involved in fostering a growth mindset as the 'Theory of Triadic Influence (TTI)' explains that intrapersonal, interpersonal and contextual factors impact mindsets (Flay, Snyder and Petraitis, 2009, p.451; Gershon, 2016). Teachers, being in a child's 'microsystem' and therefore belonging to the interpersonal factors, can, for example, adapt their language for children; this enables them to develop their linguistic intelligence by imitating their teacher's use of language (Bandura, Ross and Ross, 1961; Gardner, 1993; Doherty and Hughes, 2009). An example of such language is process praise which emphasises the effort and the use of available help and strategies as a key to success; this can lead to children striving for more challenging work and develop intrinsic motivation as they believe that success is not tied to unchangeable factors (Dwyer, Dweck and Carlson-Jaquez, 2018; Corpus and Lepper, 2007). It is important to note that when children do not succeed despite their effort, teachers do not praise that lack of progress but collaborate with the child and teach strategies that can be used to progress; this is similar to the 'deliberate practice mindset', where children systematically

move through Vygotsky's Zone of Proximal Development (ZPD) with the help of another person, until they have gained enough knowledge to continue independently (Otterbach, 2006; Dweck, 2016a; Ericsson and Pool, 2016). Nevertheless, generalisations regarding the use of praise should not be made due to "individual differences among children"; for example, research has shown that gender may be one of the factors as girls seem to respond to praise regarding effort, while boys prefer ability praise (Burnett, 2002; Weaver et al., 2004, p.364; Haimovitz and Henderlong Corpus, 2011). Additionally, higher attaining children are more likely to display a fixed mindset (Legget, 1985 in Dweck and Legget, 1988).

Teaching approaches should also be changed - for example "open problems" develop problem-solving skills in Maths and aim to achieve mastery, which is also the goal of a growth mindset ethos (Blad, 2015, p.10). Solutions of these tasks should be discussed as a whole class to show individuals that others also struggle and to support each other when working on common mistakes (Davis, 2017). This reflection, as well as metacognition, which demonstrates that thinking can be self-regulated, must be modelled by teachers who explain associated thought processes to show children strategies they can use to approach other challenging work (Gershon, 2016; Davis, 2017). To explain to children why struggling and making mistakes is valuable, the concept of a 'Learning Pit' can be used; children start the 'Learning Pit' by challenging themselves, then they construct meaning through dialogue and finish by reflecting on their learning (Nottingham, 2009; Challenging Learning, 2016). This concept is well-supported by learning theory, such as Piaget, Dewey and Vygotsky, who claim that knowledge is actively constructed by children or through interaction with others (Pound, 2006). This develops a better sense of self-regulation, which is vital to a growth mindset, and can be developed through reflection and through mindfulness, a 'conscious awareness of our current thoughts, feelings and surroundings', which also improves levels of self-awareness and can lead to improved mental health (Greeson, 2008; Duckworth et al., 2011; Hawn and Holden, 2011, p.10; Gershon, 2016). Closely linked is also emotional intelligence – the ability to motivate oneself and persist through challenges (Goleman, 2005).

From this research it is evident that there is a lot of uncertainty around the effect sizes and right implementation of a growth mindset in schools and whether it has an effect on the well-being of children - 85% of teachers would like more input on teaching strategies (Blad, 2015; Reynolds and Birdwell, 2015). A large amount of research has been conducted in the US, however, this was done by a small group of academics. Quality research in the UK needs to be carried out. Additionally, the teaching of children's mental health need to be included in teacher training as recommended by Health Committee in the House of Commons (MHFA, 2014).

Research Questions

Research questions should be clear and concise as they “help develop, structure and order’ a research project to provide an answer for the aims of the study (White, 2009, p.33). For this research, following questions have been set:

1. Which strategies are used to implement a Growth Mindset approach in Key Stage 2?
2. What is the relationship between the Growth Mindset approach and children’s academic achievement as well as well-being?
3. What are teachers’ views and opinions on teaching a Growth mindset?

Methodology

This small-scale research project and was carried out at a two-form entry Junior School in the West Midlands. A mixture of qualitative and quantitative data was collected using primary sources; making it a mixed methods study (Kumar, 2011). The research instruments used were interviews, questionnaires, document analysis and observations and were each piloted by peers to ensure the suitability of the questions and collection of valid data. Considerations have been made regarding reliability, which refers to the consistency of the results, and validity, which ensures that the data collected answers the intended questions (Long and Johnson, 2000 in Noble and Smith, 2015, p.34). To increase the study's validity, triangulation was employed by using more than one research instrument to answer the research questions (Johnson, 1997, p.283). This and critical self-reflection support the reduction of bias in interpretation and the observer's recording (Sapsford and Jupp, 2006). Data also searched for "examples that disconfirm their expectation and explanations", which is called "negative case sampling" (Johnson, 1997, p.284).

Document Analysis

Document analysis is a time-efficient, easily available, exact and an unobtrusive research instrument (Bowen, 2009). It entails the exploration of secondary sources such as existing documents to answer the first two research questions (Lambert, 2012). According to Bowen (2009), it can be used to find out about changes and underlying patterns which is why the school's Key Stage 2 performance during the last two academic years in national tests has been analysed quantitatively; even though the accuracy cannot be proven, this public record is reliable as the data has been collected for governmental purposes. Duffy (2008) states that document analysis can be used to complement information obtained by other research instruments, therefore, a whole-school overview showing strategies used to encourage a growth mindset in children has been taken into consideration to identify gaps or verify practice observed across the year groups and responses made in questionnaires. One potential drawback of document analysis is the interpretation of the researcher, which could be influenced by personal bias (Marshall and Rossmann, 1999). This threat to reliability has been reduced by showing the data derived to a "disinterested peer", someone not involved in the project, who looked through the notes and judged whether the evidence

is correct or whether it provides further insights; this is usually referred to as “theory triangulation” (Johnson, 1997, p.283; Sapsford and Jupp, 2006; Lambert, 2012). Bowen (2009) also points out that some documents may lack detail beneficial to the research project, such as the reasons for changes in results; if this research was to be repeated, these could have been investigated in more depth during interviews.

Questionnaires

Initially, semi-structured, one-to-one interviews with members of staff were planned to gain an in-depth understanding of their classroom practice as well as their views and opinions, however, the school decided to pause all school-based research due to recent changes regarding data protection. With the headteacher’s permission, a set of identical questionnaires was distributed electronically to all eight members of staff to gain an understanding of teachers’ views, pinpoint strategies used in the classroom and whether any impact had been observed.

Although not ideal for this project as only a restricted number of open questions can be asked without affecting the return rate, questionnaires have many advantages. They are cost and time-effective for researchers as well as participants, collect clear and unambiguous data as they are easy to complete and are useful in finding patterns; this strengthens the reliability of data gathered (Gillham, 2008; Dunne et al., 2005; Denscombe, 2007). A variety of types of questions were used to stop the respondent from becoming disengaged and careful piloting has ensured that it was straightforward to complete (Denscombe, 2017). Closed questions entailed scales similar to Likert Scales, which delivered comparable data that was brief and easy to analyse while giving the respondents the flexibility to express their views by not making an absolute statement in either extreme (Cohen, Manion and Morrison, 2007; Sharp, 2009). To lessen the disadvantages of closed questions, open questions were also included to give the respondents the opportunity to express their professional views in more detail, providing qualitative data, which in turn, is harder to analyse (Denscombe, 2017). More open-ended questions were included to compensate for the lost depth of explanation due to not carrying out the interviews, as originally planned. Another disadvantage of these questions is that it is more time-consuming and gave them the freedom to choose the length, making some answers rather

brief (Denscombe, 2017). It should be noted that due to the size of the research location, only a small number of teachers are employed which does not enable me to generalise my findings (Dunne et al., 2005).

Observations

Observations in “naturally occurring” situations enabled the researcher to find out which strategies the teachers were using, how children responded to them and gauge their enjoyment of learning (Cohen, Manion and Morrison, 2007, p.396). In total, five lessons across the school were observed - three lessons on core subjects and two on foundation subjects. The class teachers have been notified of the observation at the beginning of the day so the content planned would not be changed because of the researcher’s presence. To increase objectivity and validity, the researcher engaged in non-participant observations which also lowered the risk of the ‘Hawthorne effect’ - the adaptation of behaviour; children’s behaviour seemed normal and they were participating in the lessons by collaborating, asking questions and admitting mistakes (Burton and Bartlett, 2005; Kumar, 2011). As a result of piloting, the observation framework has been changed and simplified to only concentrate on the language used by the teacher when speaking to children as this was also one of the main, observable strategies identified; quantitative data has been collected by tallying the number of comments matching each mindset and qualitative data has been collected by recording quotations which gave a better insight. Having this clear focus reduced “observer bias”, the researcher’s subjective thoughts (Hopkins and Ahtaridou, 2008). It also increased the reliability, as results obtained by different researchers would have yielded similar results (Denscombe, 2017).

To answer the second research question, it would have been helpful to develop criteria to gauge children's well-being/enjoyment throughout the lesson, however, this seemed to be unreliable as Denscombe (2017) points out that attitudes and thoughts cannot be interpreted easily and was therefore dismissed by the researcher. Instead, an overall comment on children’s behaviour was written at the end of the lesson.

Interview

A group interview was conducted with six children, three of each gender, to gather information on their view on growth mindset and how this affects them. "Convenience sampling" has been adapted to a degree as children, who were available, were chosen; however, a member of staff has chosen children that would be able to articulate their answers best, while considering a spread of ability (Walliman, 2005, p.278) A group interview increased reliability as more than one child offered their view on the questions and because the participants' body language and emotions could be considered when interpreting the data (Denscombe, 2017). The interview consisted of open-ended questions, which were occasionally rephrased to ensure clarity in understanding, to reduce subjectivity and to allow them to share their "spontaneous understanding" and expand on their responses, thus creating a more natural conversation (Knight, 2002, p.52; DiCicco-Bloom and Crabtree, 2006). To help reduce bias, the interviewer refrained from showing positive or negative reactions to responses, ensuring that the children were not led on. Validity was kept by seeking feedback from the staff member who was present, to ensure that the interviewer interpreted answers truthfully (Knight, 2002). The interview was not audio-recorded due to the school's safeguarding policy and to prevent the children from becoming intimidated (Denscombe, 2017). By piloting the interview questions, it has been discovered that one question could be removed as it was already indirectly answered through a different question. One main disadvantage that derives from interviewing children, is that they might change their response according to what they think the researcher wants to hear; this is called the 'Hawthorne effect' (Burton and Bartlett, 2005). Additionally, children may be inclined to boast or exaggerate their responses, which could be the case in one response as the child's description matches the ethos of a growth mindset too well (Denscombe, 2017). Not including the piloting, this was the researchers first interview which could have led to opportunities missed (Hoyle, Harris and Judd, 2002 in Kajorboon, 2005). To gather more data on children's self-esteem, a questionnaire with a self-esteem scale could have been completed by them, however, that would have reduced the feasibility of this project.

Ethics

This project has been granted ethical approval by the University of Wolverhampton's Ethics Committee after being validated by the researcher's project tutor. Guidelines by the British Educational Research Association (BERA, 2011) have been adhered to throughout the project. Each participant was informed of the research purpose to prevent any distress to be caused. Furthermore, they remained anonymous and data obtained was treated confidentially and stored according to the Data Protection Act (Great Britain, 1998). Presumed consent was obtained when the teachers filled out and handed back the questionnaire. The leadership team decided that there was no need to obtain consent from parents in regards to the group interviews as a member of staff was present to minimise safeguarding concerns. Additionally, the questions were shared with the member of staff prior to ensure suitability. Each child was treated like a "competent participant" and explained to that they can withdraw at any time (Farrell, 2005 in Skånfors, 2009, p.3). The children might have consented due to being asked by an adult to participate so special care was placed to recognise signs which indicate that a child would like to withdraw from the project by, for example refusing to respond or disregarding the researcher - this did not occur (Skånfors, 2009).

Findings

1. Which strategies are used to implement a Growth Mindset approach in Key Stage 2?

A variety of strategies were implemented to support the whole-school implementation of a growth mindset ethos. Findings were collected through document analysis of whole-school approaches, questionnaires completed by teachers, and through lesson observations – this leads to triangulation and raises the study’s validity. According to Gershon (2016) mindsets must be nurtured by all stakeholders, therefore, workshops for parents were organised and leaflets distributed to support them in using growth mindset approaches. Additionally, displays with children’s quotes about growth mindsets can be found in corridors. Due to the high number of approaches used in classrooms, this discussion focuses on the most popular ones; these are carried out across Key Stage 2 and adapted by staff to suit their classes.

The first strategy is the oral and written use of positive language related to a growth mindset, such as process praise, by teachers and children; four out of five teachers regard it as vital. A teacher explained in a questionnaire that it supports children in thinking positively about challenging activities and that the teachers’ use of it models the thinking they would like the children to adapt. This is supported by Bronfenbrenner’s and Bandura’s research which claims that children tend to imitate teachers as they are in their ‘microsystem’ (Bandura, Ross and Ross, 1961; Doherty and Hughes, 2009). One teacher added that the use of growth mindset language increased children’s willingness to persevere through challenges and accept mistakes. This has been confirmed by observations and the approaches laid out in the whole-school overview although it has been found that the frequency of growth mindset language varied. Some teachers used it up to ten times in a 45-minute lesson, while others only referred to a growth mindset or related themes twice within a lesson. This could be due to the teacher’s confidence in implementing a growth mindset approach, as Reynolds and Birdwell (2015) point out that 85% of teachers would like to have further input on correct implementation. Additionally, the subject taught may cause this difference as observations showed that teachers were more inclined to use growth mindset related language in core subjects, especially Maths. In contrast, there would be little or no reference to growth mindset in foundation subjects. This could be due to the pressure schools are facing to perform well in national tests but also due to teacher’s

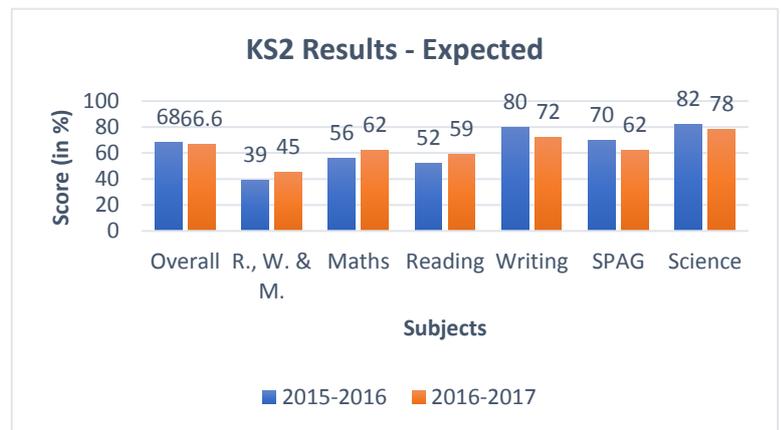
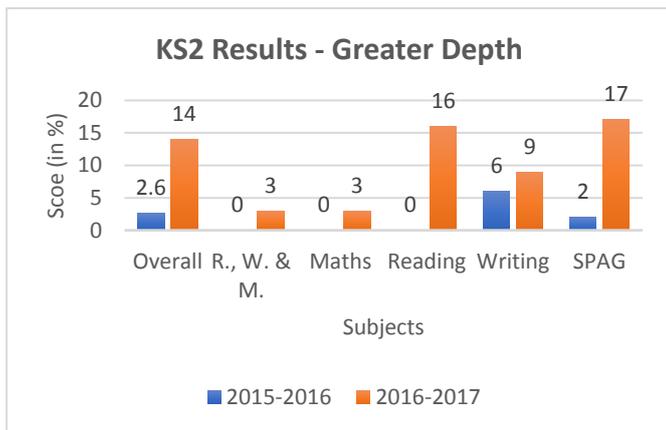
possible efforts to change the children's attitude towards Maths; according to Boaler (2010) it is culturally acceptable to struggle in Maths, which promotes a fixed mindset.

The second strategy is the use of peer support, which is regarded as key in social constructivism (Pound, 2006); it has emerged as a strong theme during the document analysis and has been observed in all observations, even though only 1 out of 5 teachers mentioned it as a key strategy in the questionnaires. This could imply that teaching staff see it as general good practice to include collaboration in their lessons. Davis (2017) pointed out the importance of whole-class discussion when working on tasks and more specifically, mistakes, an approach observed during an observation in Maths; children were presenting their results and engaged in a discussion with their peers. One member of staff highlighted the effectiveness of 'Maths advisors' in developing a growth mindset and a structure of support which is an approach where an 'expert' supports a struggling peer, which enhances collaboration and gives children the opportunity to "pass on their mastery understanding".

Finally, the document analysis shows that independence is encouraged as children produce weekly "reflective writes", set personal targets and track their progress. Only two out of five members of staff mentioned this in their questionnaires as a successful strategy and children's target setting has not been directly observed in a lesson, however, the researcher took note of the tracking grids in the back of children's books and how children referred to their targets in written feedback. Gershon (2016) also emphasises the use of reflection as it increases children's ability to self-regulate which can lead to improved mental health. In 2 out of 5 observations, teachers gave 'tokens' as a reward for independence and children in Year 6 revealed in the group interview that the reward of going into a 'Break Out Zone', a special room for hard and independent workers, was popular as it gave them an opportunity to work in silence. All participants referred to the 5Bs (brain, bits and bobs, buddy, brave and boss) in questionnaires, observations and the group interview, which are displayed in all classes as a reminder of strategies children can use when struggling. This was particularly effective and popular amongst children and links to Ericsson and Pool's (2016) research on a deliberate practice mindset where children use resources and support from teachers or peers to progress through Vygotsky's ZPD until they are at a stage where they can move on independently.

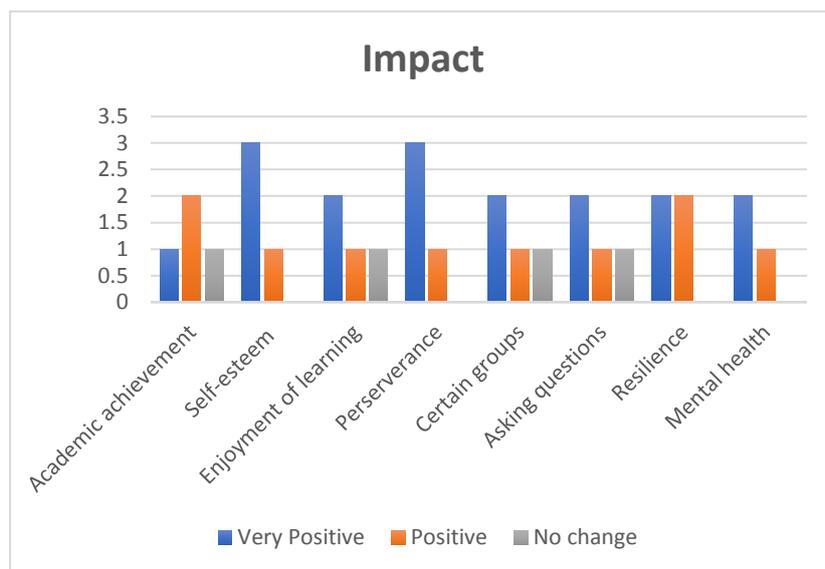
This research project showed that a wide range of successful strategies are used in the school to implement a growth mindset, however, some teachers do not tend to apply them in the same way across the curriculum which could affect the impact a growth mindset ethos has on children.

2. What is the relationship between the Growth Mindset approach and children’s academic achievement as well as well-being?



A key focus of this research project was to have a better understanding of the potential relationship between a growth mindset and children’s well-being – a big concern in today’s society due to various factors such as the increase in national testing during primary school. As Tomsett (2017) claims that children’s successes directly impact their self-concept, the school’s Key Stage 2 results have been examined. Additionally, questionnaires and a group interview with children were used to answer this research question. The school introduced the ethos of a growth mindset in 2015-2016. Through document analysis which compared achievement between the academic years 2015-2016 to 2016-2017 it was found that, overall, children’s academic achievement has slightly worsened by 1.4%, however, the percentage of pupils reaching greater depth had increased significantly by 11.4%. This contradicts Leggett’s (1985 in Dweck and Leggett,1988) claim that children who struggle in school benefit most from a growth mindset. The teachers also expressed differing opinions in terms of benefits for specific groups; in an interview these views would have been explored further. Nevertheless, it must be considered that achievement might have been affected by other factors, such as fixed mindsets at home or some fixed approaches within school, such as ability grouping, which is pointed out by Dweck (2016b). Additionally, it

needs to be highlighted that achievement in the areas, which are generally considered to be priorities in schools due to national testing, has improved for all children suggesting that the school might have concentrated on improving achievement in Reading, Writing and Maths rather than other subjects. This claim has been confirmed through observations; teachers were using growth mindset approaches in core subjects but less so in foundation subjects.



The quantitative data gathered from the questionnaires reveals that teachers see the impact of a growth mindset as mostly 'very positive', 'positive' or 'neutral', stating that the most evident benefits are seen in children's self-esteem, enjoyment of learning and perseverance. One teacher was reluctant on making statements regarding the impact on children's self-esteem and mental health as psychological effects are hard to measure and therefore showing a possible reason for the disagreements between researchers (Good, Aronson and Inzlicht, 2003; Blackwell, Trzesniewski and Dweck, 2007; Kessler et al., 2007; Education Week Research Center, 2016; Li and Bates, 2017).

In the group interview with six children, all viewed the growth mindset approach in a positive light. They explained that because of the understanding that their abilities are not fixed, they feel less pressurised which reduces stress. They also expressed that they do not fear challenges or feedback as they see it as constructive and positive support. However, one child stated that if tasks are too hard, they demotivate her, showing the limitation that Srivastava and Beer (2005) have researched; a person who faces failure despite increased effort may face more serious psychological consequences. Furthermore, it proves Vygotsky's

theory that children learn best when teachers design tasks that are within the Zone of Proximal Development (ZPD) - making links to Ericsson and Pools' deliberate mindset. Interestingly, children in Year 6 stated that a growth mindset is now more beneficial than in previous years due to the pressure of the SATs; it helps them to stay positive and work hard to achieve. When asked about the impact on their life outside of school, a pupil talked about the significant improvements she has made in her running club - developing from the worst to the best runner.

The school has not seen a significant change in results in Key Stage 2 since the implementation of a growth mindset ethos; however, the results for greater depth have significantly risen. This could be due to the established growth mindset approach, however, since schools are always changing their practice to achieve better results, this could also be due to other factors. In a bigger study, other changes could have been examined to have a better view of factors influencing the results. However, the teachers and children viewed the approach very positively.

3. What are teachers' views and opinions on teaching a Growth mindset?

Questionnaires have been used to understand teachers' views and opinions on the newly implemented growth mindset ethos. More findings with increased validity would have been collected if interviews were carried out as the researcher would have had the opportunity to question participants further and get a deeper understanding of their views and opinions. Therefore, findings for this research questions are rather brief.

In the questionnaires, the members of staff were consistently positive about the effectiveness of growth mindset in their classrooms, emphasising the change in attitude in children; children are now viewing their learning in a more positive light and welcome challenges as they can work on it together, which was also a point made by a child in the interview. One teacher stated that it has changed the learning environment into a more positive place for children to work in. Another teacher explained that it frees children from "fixed viewpoints" and gives them and the teachers the chance to see their full potential. However, it has to be considered that certain 'fixed approaches' such as ability grouping have been used which shows that children are still being limited to a certain degree (Dweck,

2016b). Another member of staff emphasised the impact it can have on children's well-being but noted that it also changed the staff's morale and attitude towards learning as well as some teachers had fixed mindsets themselves. This would have been interesting to explore in an interview as a teacher's mental health is also a major concern due to factors such as high workload. One member of staff has praised the support they have received from the leadership team enabling them to implement the approach correctly, avoiding a 'false growth mindset' which is very common, according to Dweck (2016b).

All members of staff view the relatively new implemented growth mindset approach as beneficial to the children's well-being and have seen positive changes in their attitudes towards learning.

Conclusion

The findings of this research project indicate that a growth mindset has the potential to have a positive impact on children's academic achievement if implemented consistently across the school. It has been found that the school's results for Key Stage 2 have decreased slightly; however, children working at greater depth have seen a significant improvement in their results. The exploration of reasons for these improvements would be an interesting area for further research. Additionally, it has been found that a growth mindset can have a positive impact on mental health, although not all teachers wanted to fully commit to this statement as it is difficult to measure, especially as teachers have many children under their care. Pupils generally viewed it as beneficial to themselves and expressed that it reduces the feelings of stress and improves their self-concept which may result in improved mental well-being. For a better understanding of the impact of a growth mindset it would be interesting to repeat this research project at the same location in a few years. As this is a small-scale research project, the results cannot be generalised and can only be applied to the research location.

Recommendations

Following recommendations are made:

- More large-scale research needs to be carried out to determine the effects of a growth mindset on children.
- The school might want to consider removing strategies that foster a fixed mindset, such as ability grouping as this may diminish the results of their positive work on a growth mindset.
- Although the findings do not indicate clear advantages of a growth mindset approach, other schools may want to consider taking the same route as the research location as it is a low-cost change which could potentially have an impact on their pupils.
- With regards to personal teaching practice, this research has clearly highlighted the need to consider children's holistic development and has shown how simple strategies can be implemented to help children develop a better self-concept.

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