

An exploration into strategies used to develop a growth
mindset in learners, and the impact that this may have
on a learner's mindset and resilience

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Frontispiece

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Introduction

This research project aims to explore strategies that may be used to develop a growth mindset in learners, seeking to evaluate the impact of a number of approaches and considering the effect that these may have upon a child's mindset. In addition to this, the author will consider whether a growth mindset, and the strategies used to promote it, may affect a learner's resilience.

The term 'growth mindset', as devised by Dweck (2006; 2017), refers to the belief held by an individual that their abilities can be developed through applied effort, whereas those with a fixed mindset believe their abilities to be of a fixed nature (Dweck, 2017; Lai et al, 2018). These beliefs have been argued to impact upon the behaviour, resilience and success of a person (Yeagar and Dweck, 2012; Nottingham, 2017), with such beliefs being suggested to permeate every area of an individual's life (Dweck, 2017). Furthermore, Donaldson (2015, p. 29) outlines within the four purposes of the new curriculum, the importance of developing learners to be "ambitious, capable learners who...set themselves high standards and seek and enjoy challenge". Therefore, it may be suggested that a growth mindset may contribute significantly towards such objectives as research has shown that the ability to recognise the value of challenge and effort is directly linked to a growth mindset, as when a person adopts this mindset, such perceptions about challenge and effort naturally develop (Duckworth et al., 2007; Hochanadel and Finamore, 2015; Dweck, 2017; Polirstok, 2017; Lai et al., 2018).

Resilience and a growth mindset are terms that are often used in conjunction with one another, with various literature and reports using both terms in an interconnected fashion, often suggesting that by promoting a growth mindset, resilience in learners is also developed (Yeagar and Dweck, 2012; Gershon, 2016; Dweck, 2017; Nottingham, 2017; Estyn, 2017; Estyn 2018a). However, research has shown that "resilience is a multifaceted phenomenon, which is influenced by the presence or absence of various resilience-promoting resources" (Joyce, et al., 2018, p. 1), with such resources being found to potentially depend upon the individual having access to a range of personal, family and friendship resources, with a positive attachment to a parent or another adult being an eminent factor (Welsh Government,

2010; Rutter, 1979 as cited in Shean, 2015; Hughes et al., 2018). Additional factors include peer and community support, childhood role models, having a positive connection to school, social and emotional skills and the ability to regulate emotions (WG, 2010; Hughes et al, 2018). This study seeks to address this perceived variation in literature, by investigating whether the development of a growth mindset may indeed serve to develop resilience, or whether such resilience is dependent on a greater range of factors.

Prior to commencing this research, this author hypothesised that whilst there may be a range of effective pedagogic strategies or approaches to develop a growth mindset in learners, some may be more effective than others. Furthermore, it has been predicted by this author that these may not have a substantial effect upon a learner's overall resilience, with those who are lacking in resilience being, in general, more resistant to the strategies used, therefore being more resistant to a growth mindset.

Literature Review

Growth Mindset

Whilst possessing the view that intelligence is malleable (Dweck, chiu and Hong, 1995; Dweck, 2017), and that an individual's potential is not predetermined, a person in a growth mindset may also view challenges positively (Dweck, 2017; Lai et al., 2018). Whilst these people may embrace such challenges due to the belief that expending effort overtime will result in eventual success (Polirstok, 2017), they may also, perhaps more fundamentally, perceive these challenges to be opportunities for intellectual or personal growth (Dweck, 2017; Lai et al., 2018).

A growth mindset may be an important concept for learners at any age (Polirstok, 2017), with the resulting benefits including not only the willingness of the student to embrace challenge and exert effort (Duckworth et al., 2007; Hochanadel and Finamore, 2015; Dweck, 2017; Polirstok, 2017; Lai et al., 2018), but also in increasing their level of achievement within various domains, including cognitive, affective, motivational and academic (Successful Lives, 2015; Zhang, Kuusisto and Tirri, 2017). This may be as when individuals possess an incremental theory of intelligence, where they believe intelligence is not a fixed trait, they are more likely to increase their efforts, attempt new strategies, and improve performance, whilst those with an entity theory of intelligence, are in contrast, preoccupied with protecting perceptions of competence and accordingly reduce their expended effort, use ineffective strategies, and report negative emotions (Dweck, Chiu and Hong, 1995a; Dweck and Leggett, 1998 as cited in Haimovitz, Wormington and Henderlong Corpu, 2011, p. 748). However, Hattie (2017) argues that a growth mindset may not be advantageous in every circumstance, with a fixed mindset being at times, more appropriate (Hattie, 2017).

A fixed mindset may be defined as a perspective that “views intelligence as static or incapable of changing” (Lai, et al., 2018, p. 105), with individuals who possess such a mindset retaining embedded perceptions of themselves, thus potentially causing them to engage in defensive behaviours as they avoid situations that may reveal to others, or themselves, what they believe to be shortcomings in their ability or intelligence (Mawer, 2014). These perceptions are often formed from past experiences, with failures of the past

often leading to an assumption that similar failure will occur in the future (Chiu et al., 1997 as cited in Hochanadel and Finamore, 2015), thus resonating with the concept behind the learned helplessness theory, whereby the belief that one has no control over future outcomes leads to motivational, cognitive and emotional deficits within that person (Nolen-Hoeksema, et al., 1986). Furthermore, “if a person explains a bad event by a cause internal to himself or herself rather than external, he or she will be more likely to show lowered self-esteem” (Nolen-Hoeksema, et al., 1986, p. 436). Additionally, as a result of this perception, those who adopt this mindset may also employ less effort when faced with challenges (Hochanadel and Finamore, 2015). This corresponds with the work of Hattie and Yates (2014), where they highlight that utilising effort is dependent on one’s self-efficacy level or confidence that they can succeed.

When people avoid challenges or situations that they deem to be a risk, they may miss valuable opportunities, including both opportunities for learning and personal or social development (Costa and Kallick, 2008). Furthermore, a person’s mindset may affect how they approach a number of aspects of their life, including their relationships with others (Dweck, 2017; Zhang, Kuusisto and Tirri, 2017). This may include both their judgement and treatment of others (Zhang, Kuusisto and Tirri, 2017) as well as their choices about the types of relationships that they may seek to have, as those with a fixed mindset may seek relationships that boost their self-esteem, rather than those that challenge them to grow as a person (Dweck, 2017), this is referred to by Symonds (2015) as a process of self-enhancing, where a person seeks to increase their own self-esteem by surrounding themselves with people who encourage their current behaviour, or who are like-minded.

Strategies

Considering which strategies may be used to effectively develop a growth mindset in children firstly involves acknowledging a person’s mindset as a set of beliefs held by that person, which can be reformed (Yeagar and Dweck, 2012; Tirri and Kujala, 2016; Dweck, 2017). This may be an important element to observe, as by outlining this author’s objective of identifying effective strategies to develop a growth mindset in children, it is assumed that such a mindset is not an innate attribute of a person, but instead a way of thinking that can be adopted by individuals, as is argued by Hattie (2017).

It has been suggested that education should not be fixated upon achieving the correct answers, but instead on challenging learners to reach beyond their past and present achievements (Nottingham, 2017). This may have implications for the development of a growth mindset, as it has been found that where the culture of a classroom focuses on grades, then when given the choice, pupils will avoid tasks that they deem to be too challenging, with those who encounter difficulties often attributing these to a defect in themselves which they are powerless to change (Black and William, 1998; Yeagar and Dweck, 2012). Dweck (2017), reaffirms this point, by suggesting that teachers should be aware of the language they use with their pupils, being cautious not to respond to correct answers with praise, but instead by encouraging that child to pursue a higher level of challenge, a notion that is also supported by Hattie and Yates (2014).

Furthermore, a child's beliefs about themselves, including their ability to succeed, may depend upon them developing "aspects of self-control to see learning as not about me as 'a personality', but about me as 'a learner'" (Hattie and Yates, 2014, p. 2); thereby suggesting an onus on the child to choose to manage their own thought processes. This management of a person's own thought processes may be defined as metacognition, and involves an individual being aware of the expanses and limitations of their knowledge, being conscious of the strategies they could use to produce necessary information and reflecting upon and evaluating these strategies (Costa and Kallick, 2008). This may be used effectively with learners by encouraging them to think about their own learning more explicitly, to set their own goals, and to monitor and evaluate their own progress (Quigley, Muijs and Stringer, 2019), with one school reporting such an approach to support both the development of a growth mindset and independent learning skills in children (Estyn, 2018a).

Learning how to acquire assistance from available resources, and to use self-evaluation, are skills that have been suggested to increase a learner's engagement, whilst contributing to the development of a growth mindset within these children (Polirstok, 2017). Assessment for learning, which encompasses self-evaluation (Black and William, 1998), may increase pupils' independence whilst supporting the development of a growth mindset in these

learners, as it allows them to better understand the outcome that they are aiming for, and how they can achieve this standard (Hattie as cited in Estyn, 2019). This visibility may encourage children to engage in challenges, as they benefit from realistic assessment on how they can achieve a known goal (Hattie and Yates, 2014), for it has been argued that whilst people are motivated by gaps in their knowledge, it is dependent upon the gap not being perceived as too vast or unattainable (Hattie and Yates, 2014). Donaldson (2015, p. 64), outlines the importance of such an approach by stating that, “good teaching and learning challenges all learners by encouraging them to recognise the importance of sustained effort in meeting challenges that are high but achievable for them”.

Visible Learning promotes the concept that “learning is optimised when teachers see learning through the eyes of the learner, and when learners see themselves as their own teachers” (Hattie and Yates, 2014, p. 3). This constructivist approach to learning relates to the work of Deci (1991 as cited in Jarvis, 2005; Ackerman, 2019) and his theory of self-determination, which outlines autonomy as one of human beings’ three basic needs, whilst also outlining the need for competence and relationships. However, it may be argued that whilst increasing educational attainment (Black and William, 1998; Hattie and Yates, 2014), self-evaluation may be one type of metacognitive activity that can also be used to enhance a person’s social performance (Ardoin and Martens, 2014), therefore, it may be suggested that autonomy may facilitate the development of both a person’s competence and relationships. Furthermore, Maslow argues that in order to reach a level of self-actualisation, where a person is motivated to reach their full potential, the person must first have their basic needs met, including both their social needs and their esteem needs, the latter of which encompasses their need for independence (Jarvis, 2005; McLeod, 2007).

Resilience

Resilience may be viewed as being dependent on one’s ability to call on their own personal strengths and the support of others to resolve difficulties without any detrimental or lasting effects (WG, 2010; Joyce et al., 2018), with it being suggested that being resilient is more in regard to an individual possessing the necessary resources to draw on for support when confronted with difficulties (WG, 2010). Nevertheless, what determines the level of resilience within a person may be questionable (Yeagar and Dweck, 2012), with it being

affected by numerous factors (Masten, 2001). However, research does suggest, as outlined in chapter one, that the main contributing factors in a child's life may include: possessing a positive attachment to a parent or other adult, participation in cultural engagement, having access to peer and community support, a feeling of connectedness to school, holding the belief that they are able to influence their own life course, as well as having opportunities to develop social and emotional, and self-regulatory skills (WG, 2010; Rutter, 1979 as cited in Shean, 2015; Hughes, et al., 2018).

From these resources and the evidence discussed previously it may appear that there are some commonalities between the factors that promote resilience and those that promote a growth mindset, namely developing self-regulatory skills, as the ability to monitor one's own thought processes and learning may reinforce a growth mindset in learners (Hattie and Yates, 2014; Polirstok, 2017). Furthermore, the belief that one is able to shape their own life course is outlined as a factor of resilience (Hughes et al., 2018) and a characteristic of a growth mindset (Haimovitz, Wormington and Henderlong Corpu, 2011; Dweck, 2017; Polirstok, 2017; Lai et al., 2018), thus suggesting that a growth mindset may support the development of resilience.

It has, however, been found that those children who have been exposed to adverse childhood experiences (ACEs), are less likely to have access to the resources that promote resiliency (Hughes et al., 2018), with those who have experienced four or more ACEs being found to have "the lowest exposure to individual, relationship and community factors that may build resilience" (Hughes et al., 2018, p. 6), thus it may be argued that those who lack these resources may also be hindered from developing a growth mindset. Additionally, children who have experienced a greater number of ACEs were found to be more likely to develop mental health problems later in life (WG, 2010; Hughes et al., 2018). This is perhaps why the Welsh Government have determined the development of "a resilient Wales" as one of their well-being objectives within the Well-being of Future Generations (Wales) Act (Welsh Government, 2015a, p. 7).

There have been some indications that there is a positive correlation between an individual's socioeconomic position and their level of resilience, with higher levels of social mobility being related to increased resilience later in life (Cosco, et al., 2016). Furthermore, it has been found that children from disadvantaged backgrounds are more likely to start school with weaker self-regulation skills than those who are not from such backgrounds (Education Endowment Foundation, 2019). This may provide cause for considering whether children who are from disadvantaged backgrounds may also be hindered from developing a growth mindset, as the ability to self-regulate may contribute towards such development (Hattie and Yates, 2014; Polirstok, 2017), whilst it is also identified as a factor that may influence a person's resilience (Hughes et al., 2018).

However, it may be argued that developing a growth mindset in these learners may help to increase resilience in these children, as they come to perceive their potential as an unknown entity that has the potential to be shaped through effort (Haimovitz, Wormington and Henderlong Corpu, 2011; Polirstok, 2017; Lai et al., 2018; Dweck, 2017; Hughes et al., 2018). This mindset may also be a prerequisite for adopting the intellectual or social skills needed for resilience, as the individual may be reluctant to harness such strategies if their mindsets do not support the notion that there is potential for their adversities to improve (Blackwell, Trzesniewski and Dweck, 2007; Yeagar, Trzesniewski and Dweck, 2013).

Methodology

Within this author's enquiry it was ensured that the research was conducted in accordance to the guidelines set out by the British Educational Research Association (BERA) (2018), alongside those outlined by the University of Wales Trinity Saint David's Research Ethics and Integrity Code of Practice (University of Wales Trinity Saint David, 2017) (appendix a). Such measures were taken to guarantee the research was conducted in an ethical way, thus ensuring that it sought to benefit others and avoid harm (Welsh Government, 2015b). Furthermore, it may be argued that by adhering to ethical guidelines, the aims of the research is promoted and errors are avoided, as guidelines ensure that data is represented accurately, with the data being transparent to both the researcher and the participants of the study (Resnik, 2015).

Triangulation, as defined by Denzin (1978, p. 291) as being “ the combination of methodologies in the study of the same phenomenon”, is often supported within literature (Campbell and Fiske, 1959; Webb at al., 1966 as cited in Jick, 1979), with this concept suggesting that the use of qualitative and quantitative data should be viewed as complementary methods (Jick, 1979). Within this research project, this author chose to adopt this approach by utilising a variety of methods to collect a combination of both qualitative and quantitative data. The understanding that underlies this notion being, that when there is a consensus of findings between separate methods, the validity of the results is strengthened (Campbell and Fiske, 1959; WG, 2015b), whilst it has also been suggested that using “multiple measures may also uncover some unique variance which otherwise may have been neglected by single methods” (Jick, 1979, p. 603). However, even when various measures reveal the same results, further research may still be necessary due to factors such as the sample size from which the data was sourced (Welsh Government, 2015b).

The research for this project was conducted within two separate schools, with the majority of the research taking place within a school that places the development of a growth mindset as one of their core values and aims (appendix b), with a number of strategies to promote a growth mindset already being utilised within the school (appendix c). This school shall be

referred to, for reference by the reader, as school A, with the second school in which research was conducted being referred to as school B. The sources used by the author to gather data for their research included staff and children within both schools, with focused data being collected from year two and year six children in each school, to allow for a comparison of the results from both schools, whilst trying to minimise the variability that may occur from using different age ranges, as outcomes may be distorted by factors such as this (Welsh Government, 2015b).

In addition to this, the author sought feedback from teachers across each year group within school A through the distribution of a staff questionnaire (appendix d), with one teacher from each year group being asked to participate in the survey, with the selected teachers who were asked being chosen at random from the teachers within their year group. This method of cluster sampling, may provide a more reliable way to gain data that represents the targeted population (Taherdoost, 2016), which in this case were the primary school teachers from school A. However, this author also chose to include a further two participants, with these being one of school A's emotional literacy support assistants (ELSA) and the member of staff who was responsible for leading the school's nurture group. This purposive sampling (Taherdoost, 2016) was used as the roles of responsibilities that each of these staff had meant that they were likely to engage with children who face difficulties or who may lack resilience, thus they may have been able to give valuable information on the relationship between a growth mindset and a child's resilience.

In order to collect qualitative data from year two pupils within school A, this author chose to ask them to create a mind map of a time where they had felt challenged, encouraging them to use pictures to illustrate their responses. The reasoning underlying this approach was to allow for these children to express their thoughts in a way that was not hindered by limited language skills, as it may be important to address such barriers and to consider the needs of the participants when conducting research (Salazar, 1990). Additionally, when reflecting upon this approach, it appears that it may have allowed these children to express themselves in a personal way (appendix e) that they may not have felt as free to do in a face-to-face interview (Salazar, 1990).

However, when considering the approach used to implement the pupil questionnaires in both schools, limitations to the validity of the data may be apparent. This may be as when the questionnaires were distributed to the children within school A, it was done so through an online tool which was observed by this author to allow children to look at each other's answers more easily, particularly when they were sitting in close proximity to each other, thus potentially influencing their own responses. It was due to this being observed, and the lack of available technology within school B, that this author chose to implement the questionnaire verbally, whilst getting the children to close their eyes and to raise their hands in response to the answers that they most agreed with. This provided an environment that may have allowed for them to feel less threatened, thus possibly adding validity to their responses (Salazar, 1990). However, such variability in the approaches taken to distributing the questionnaires may have actually reduced the validity of the data (Bowling, 2005).

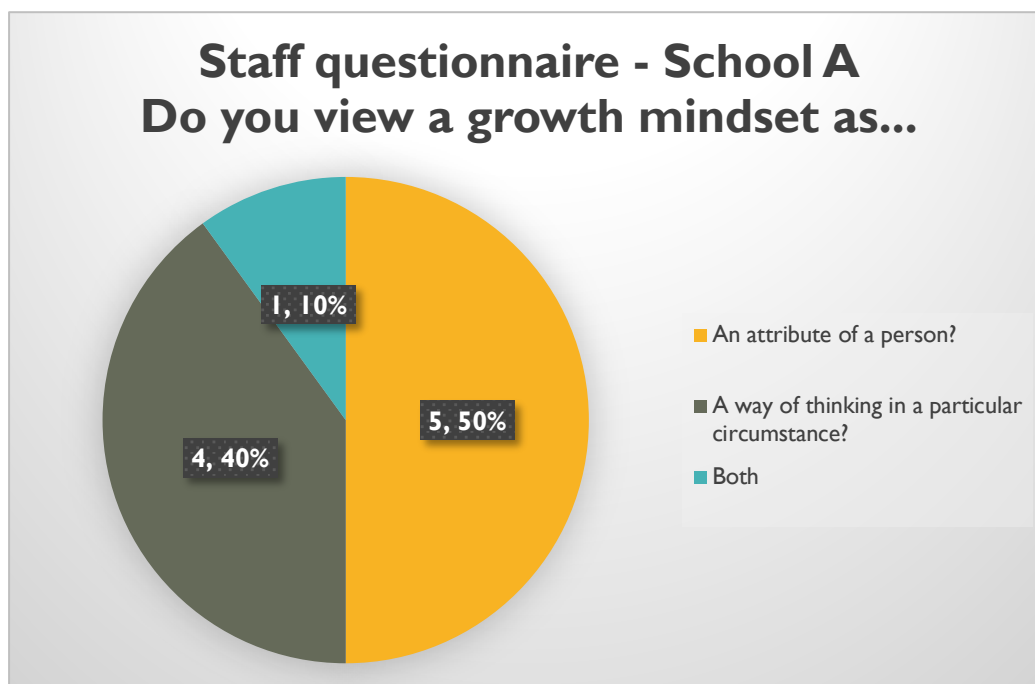
When analysing the data collected from interviews, it may be important to consider the possible effect of researcher bias that may influence the data through the wording of the questions asked (Salazar, 1990; Austin, 2016). Furthermore, this author chose to use a non-standardised approach to the interview process, thereby not using a predetermined set of questions, but instead letting the questions be guided, in part, by the participants' responses (Salazar, 1990), thus potentially allowing for a greater possibility of bias in the questions used. However, this approach is "particularly useful when information about attitudes or opinions on a complex topic is desired" (Colombotos, 1969 as cited in Salazar, 1990, p. 568), as it allows for subjects to elaborate more freely on their responses (Salazar, 1990).

Results and Discussion

Growth Mindset

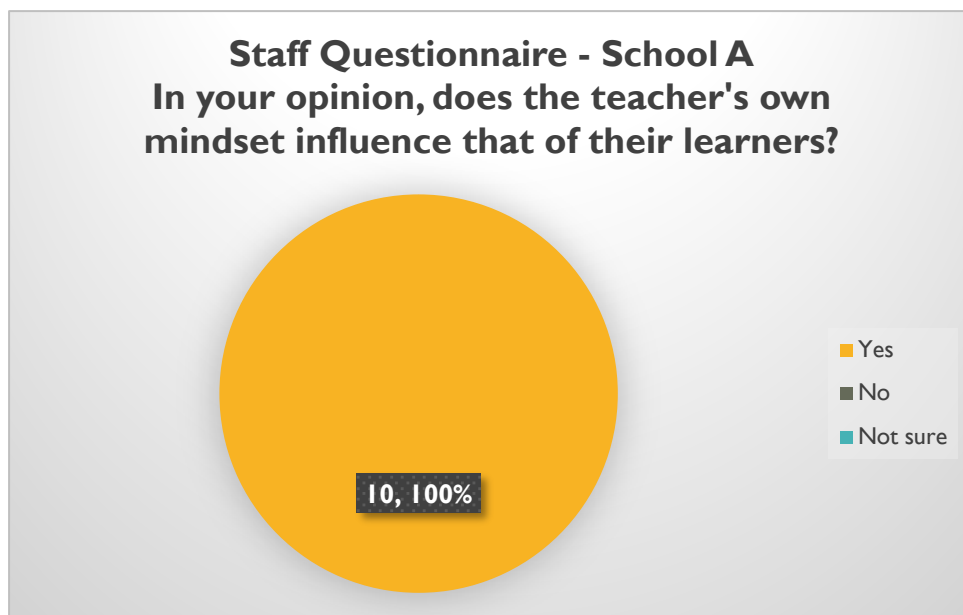
When asked how they viewed a growth mindset, fifty-percent of staff asked within school A understood it to be an attribute of a person (Figure A), opposing the views of Hattie (2017) who argued it to instead be a way of thinking in a particular circumstance. Additionally, when this author posed the question of whether a growth mindset was a result of nature or nurture to an emotional literacy support assistant within school B (appendix f), she responded by suggesting that, whilst she was not sure of whether a growth mindset was nurtured or a result of a person's genetics, it may be challenging to develop such a mindset in an individual if that person is not surrounded by the right people. This may bring into question whether such development for students may be dependent upon the mindsets of their parents, friends, and their teachers, a notion which is supported by Bronfenbrenner's ecological systems theory (1979 as cited in Hayward et al., 2018) which centralises the role of relationships and a child's interactions with others, in all components of their development.

Figure A



The importance of developing a growth mindset in both staff and pupils was made explicit during an interview with the headteacher of school A (appendix g), whereby she stated that if a teacher does not hold the belief that they are able to make a difference to a child's educational achievement, then the children will also fail to believe it. This opinion was reflected in the response of the staff within their questionnaires, whereby they all indicated that they believed a teacher's mindset affected that of their learners (Figure B). This may be as children are suggested to be aware of both their teacher's ethos and expectations (Nottingham, 2017), whilst also being susceptible to the language and actions modelled by the teacher (Hattie and Yates, 2014; Successful lives, 2015; Dweck, 2017). In addition, it has been argued that "pupils' progress is linked to their own beliefs about what teachers think about their potential to improve" (Jarvis, 2005 as cited in Grigg, 2015, p. 405).

Figure B



Strategies

Upon this author's observation of school A, it was apparent that there was a strong ethos promoted throughout the school that encouraged the use of growth mindsets, with this being displayed visually around the school (appendix h), using displays to encourage learners to choose to adopt a growth mindset, thus again asserting, as discussed in chapter two, that there

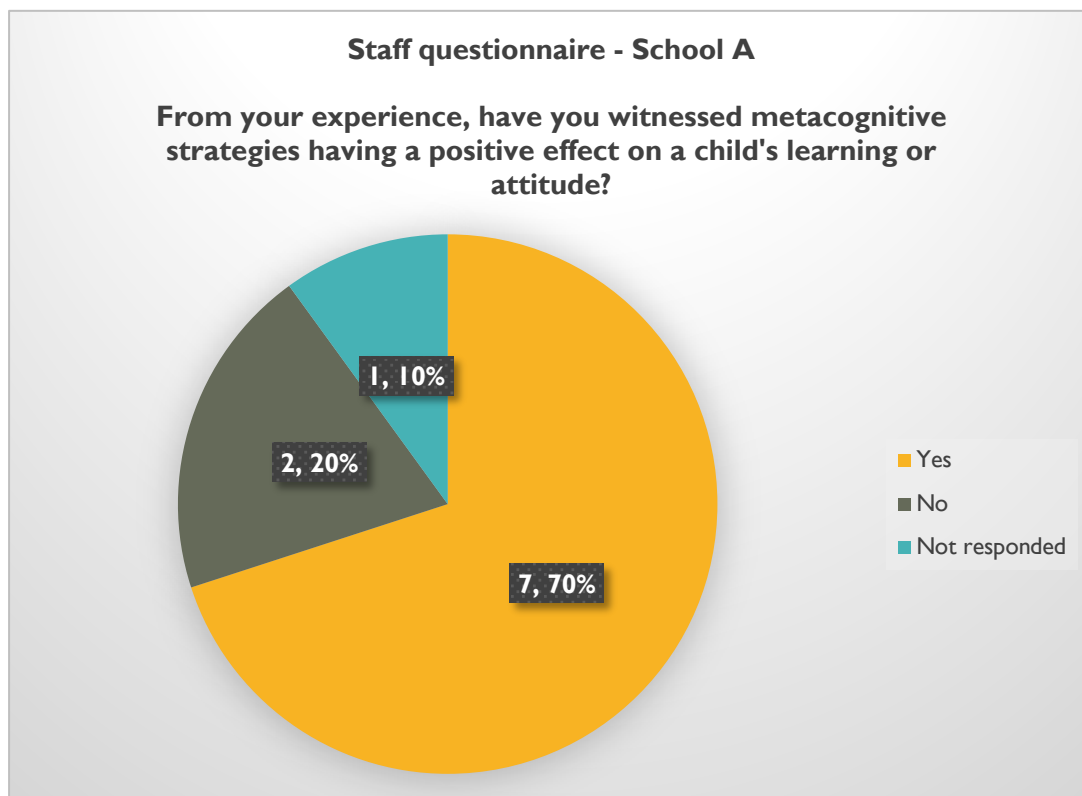
is a level of responsibility given to the learners on choosing to control their thought processes. This was clearly reflected in the response of a year six boy (appendix i) when asked by this author whether he felt the learning displays supported him in adopting a growth mindset, where he stated, “It does help, but also, we have to help ourselves”.

Furthermore, one display suggested that by changing your words, you change your mindset (appendix j). This was also reverberated in the qualitative data collected from the staff questionnaire within this school (appendix k), whereby three of the staff stated that specific use of language was an effective strategy to promote the development of a growth mindset. The connection between language and a person’s thinking may be intrinsically linked (Costa and Kallick, 2008), as advocated by Vygotsky (Pound, 2006; Doherty and Hughes, 2014), perhaps due to the fundamental role of language in thinking (Donaldson, 2015). Nottingham (2017, p. 8) argues that, “done well, dialogue is one of the best ways for participants to learn good habits of thinking”. This may take the form of active self-talk (Nottingham, 2017; Polirstok, 2017), in which the learner is supported in using key phrases or questions through active rehearsal, with such talk being found to “diffuse self-defeating thoughts and or lesson the need for task avoidance” (Polirstok, 2017, p. 6). Or indeed, it may take the form of interactive, exploratory discussion among pupils, or between teachers and their pupils, with such talk being an opportune way to integrate metacognitive strategies into classroom routine (Nottingham, 2017). However, it may be important to consider that talk may be hampered if students perceive a threat to their self-esteem (Hodgson and Pyle, 2010), therefore creating a climate of trust to welcome errors may first be required (Hodgson and Pyle, 2010; Hattie and Yates, 2014).

When asked whether they have observed any metacognitive strategies having a positive effect on a child’s learning, only seventy percent of teachers responded by answering yes (Figure C), although a number of metacognitive strategies were employed throughout the school, including learner dispositions (appendix l); the Learning Pit (appendix m), as advocated by Nottingham’s Learning Challenge (2017), and engagement in self-assessment, as evidenced in the information given by the two year six pupils (appendix i). The lack of recognition of these strategies within the results shown in Figure C may be due to a lack of

understanding amongst some of the staff as to what metacognition is, as it has been suggested to be an elusive topic that is challenging to describe (Quigley, Muijs and Stringer, 2019). Furthermore, a lack of understanding of this concept has been found to reduce its impact on pupil outcomes, as it may cause misconceptions that result in weakened implementation (Quigley, Muijs and Stringer, 2019).

Figure C

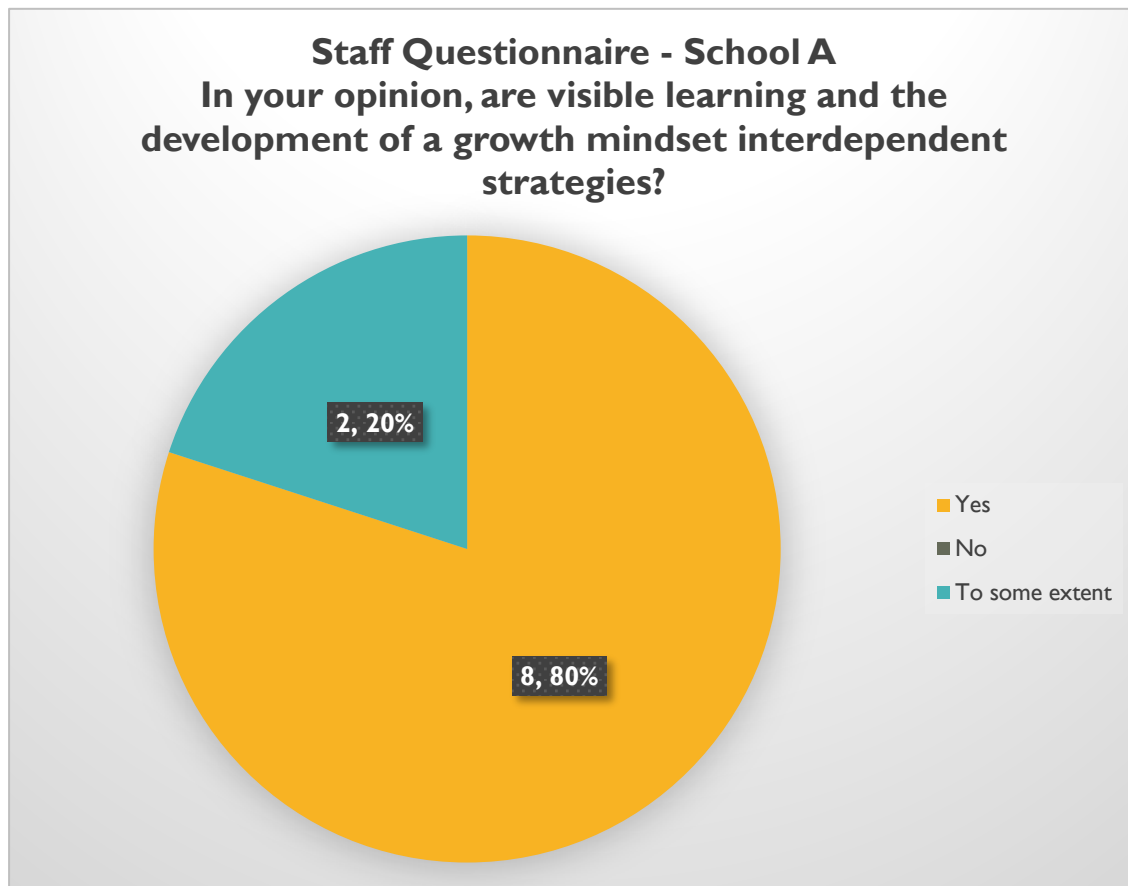


The Learning Pit may serve to support children in embracing learning that challenges them, with such challenge being deemed by Nottingham (2017, p. 3), as “what learning is all about”. When asked what a growth mindset was, the two year six children interviewed in school A used the Learning Pit to illustrate the concept (appendix i). This visual representation (appendix m) may be particularly beneficial for young children, as “the basis of children’s understanding of representation might be heavily based on vision” (Levin, 2004, p. 4). In addition, the benefit of using this approach was furthermore outlined within the qualitative data collected from the staff questionnaire in school A (appendix k), whereby three members of staff outlined the Learning Pit as one effective strategy for developing growth mindsets in pupils.

Furthermore, this strategy had been adapted for the purpose of supporting students to monitor their own behaviour and emotions (appendix n), which may also serve to support them socially as it has been argued that children who exhibit negative behaviour may go on to struggle with emotional and social difficulties due to the negative reactions of those around them (WG, 2010). Therefore, this shows an example of how metacognitive self-monitoring strategies may be used to enhance a child's social wellbeing (Ardoin and Martens, 2014), thereby supporting the notion that autonomy given to children may serve to facilitate positive relationships, as contemplated within the literature review.

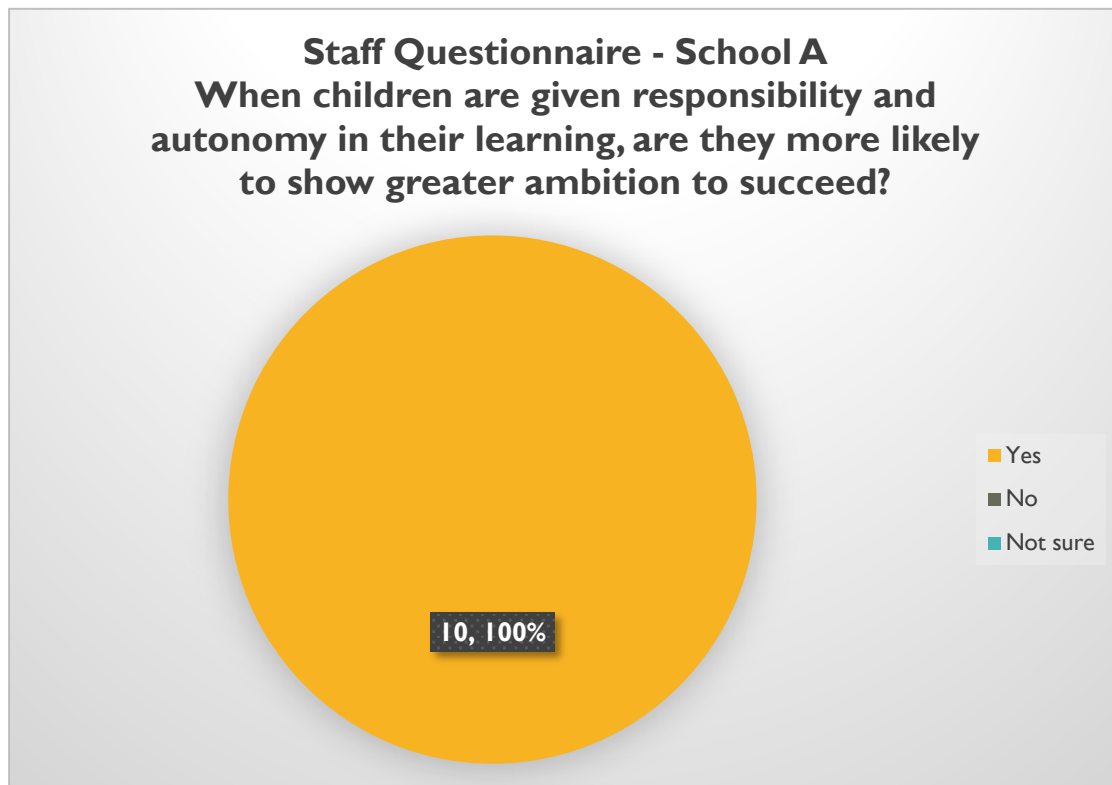
The Learning Pit and the self-assessment used by pupils are both incorporated within school A's committed approach to Visible Learning. Developing pupils to be Visible Learners, forms part of school A's core aims (appendix b), alongside developing a growth mindset in these pupils. It was furthermore apparent that these two concepts were viewed in an interwoven fashion, with one being dependent on the other, as exemplified in the results of the staff questionnaire (Figure D), with eighty percent of staff stating that the two concepts are interdependent, and twenty percent choosing the option which stated that they were, to some extent, interdependent. This may be as a growth mindset encompasses the implicit belief that one's potential is not fixed, thus through sustained effort they can achieve their goals (Dweck, 2017; Polirstok, 2017; Lai et al., 2018), whilst Visible Learning provides clarity on what that goal entails, and the practical steps that the individual needs to take to get there (Hattie and Yates, 2014). Therefore, it may be suggested that a growth mindset is the hope of achieving success, whilst Visible Learning provides clarity on how such success can be achieved. Furthermore, this may fuel a person's motivation to succeed, as it allows the gap between the learner's current attainment and their set target to be viewed as achievable (Hattie and Yates, 2014), as discussed in chapter two.

Figure D



Alongside Visible Learning, school A places a great emphasis on independent learning, which is aligned with the core principles of Visible Learning, whereby students see themselves as their own teachers (Hattie and Yates, 2014). Reflecting upon the staff questionnaire results from school A, one-hundred percent of staff who were asked, believed that giving a child autonomy in their learning increased their ambition to succeed (Figure E), a notion which was further supported by the comments made by the two year six pupils (appendix i), where they suggested that setting their own targets provided them with a greater level of challenge, which they perceived to be a positive outcome, thus showing characteristics of a growth mindset (Dweck, 2017; Lai et al., 2018).

Figure E



However, it may be argued that whilst “too little autonomy can turn some children off learning...too much can have the same outcome” (Symonds, 2015, p. 25). This may be exemplified within the results of the qualitative data collected from a year two class within school A, where one boy showed negative emotions relating to a challenge that he had experienced (appendix e). From the data it suggests that he felt that he was not provided with adequate help to overcome the challenge, thus he was left feeling frustrated at not achieving success. This echoes the notion discussed in chapter two, that if too great a challenge is given, without first providing the child with the means to accomplish success, then motivation and expended effort will be impeded (Hattie and Yates, 2014).

A solution to this problem may lie in providing the child with the adequate resources in their learning environment that they may draw on for support (Estyn, 2017). This is comparable to the strategy already used within school A, as outlined by the children in year six (appendix i), where they seek support from three sources before asking the teacher for help. However, as previously discussed, children may firstly need to be trained on how to acquire assistance from these resources (Polirstok, 2017), which may be perhaps what this child (appendix e) would benefit from.

Resilience

Resilience was identified within this author's research as being a fundamental skill for children to develop within the primary years of education (Yeagar and Dweck, 2012), as outlined by a school nurse from school A (appendix o), with it being suggested to be a skill that can be learnt. This suggestion is supported by a statement given by an ELSA in an interview within school B (appendix f), whereby she stated, "Resilience is a skill that you can learn. It can take a dip every now and then, but it is a skill that we can teach children".

However, when considering the impact of a child's home environment, including the extent to which they experience positive attachments, this author's research suggested (appendix o) that whilst it may be possible to build resilience in children that lack such factors, it may be more challenging to do so, thus echoing the research outlined in chapter two, that showed a positive attachment to a parent or other significant adult to be a major factor in a child's level of resilience (Hughes et al., 2018). Although, when asked whether these factors may impact upon a child's ability to develop a growth mindset, the headteacher of school A stated that there was no notable difference in regard to such development between the children who had these factors and those who didn't (appendix g).

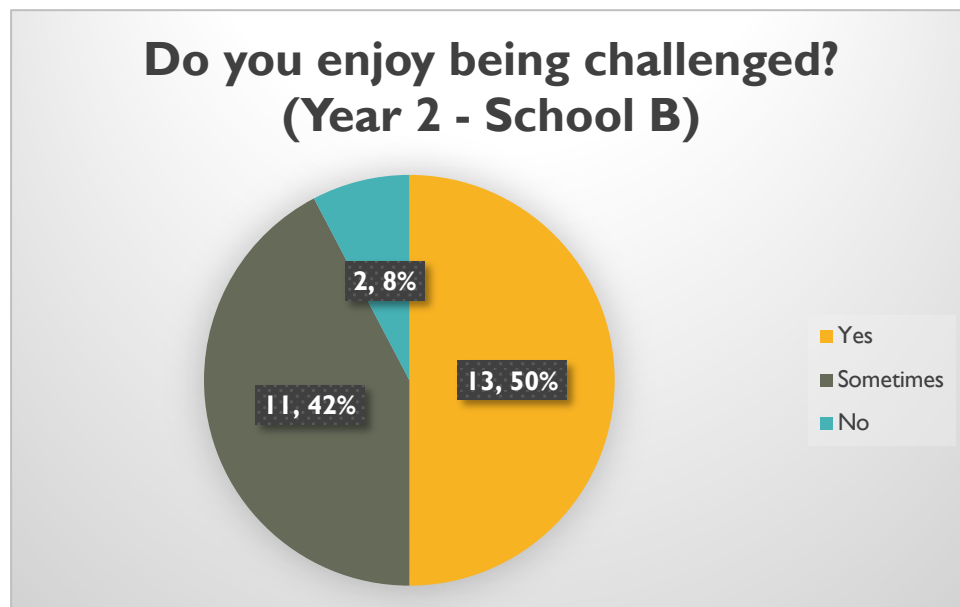
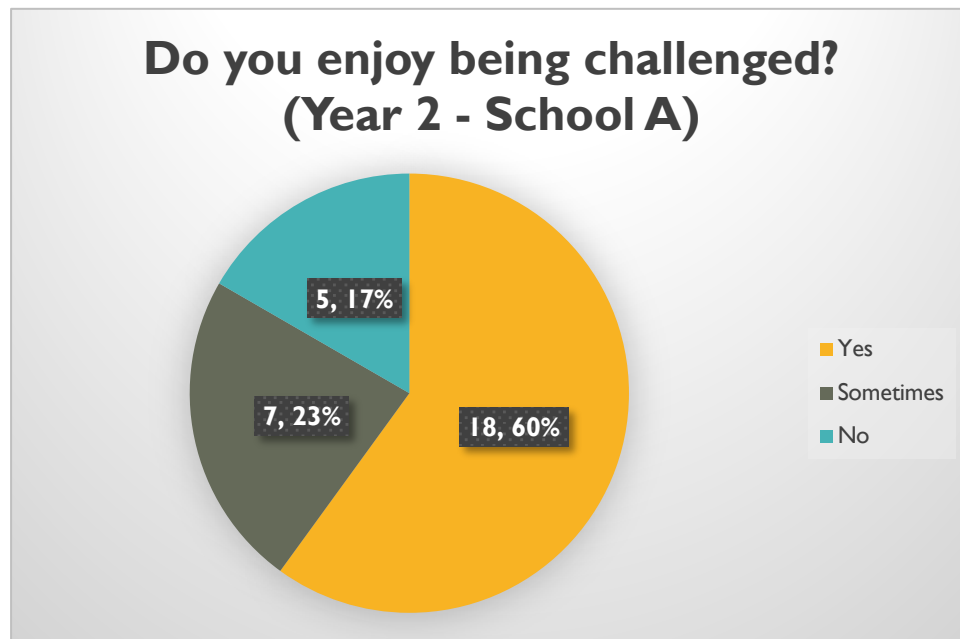
It was evident from this author's research that the majority of staff viewed resilience and a growth mindset as separate but related concepts, as exemplified within the interview held with the headteacher of school A (appendix g), where she stated that whilst she believed the two concepts to be related, she did not view them as being necessarily dependent upon one another, stating that, "I think you can have a growth mindset and still lack resilience". This however, contrasts with the results from the staff questionnaire in which ninety percent of staff stated that they believed resilience to be a prerequisite to the development of a growth mindset (Figure F).

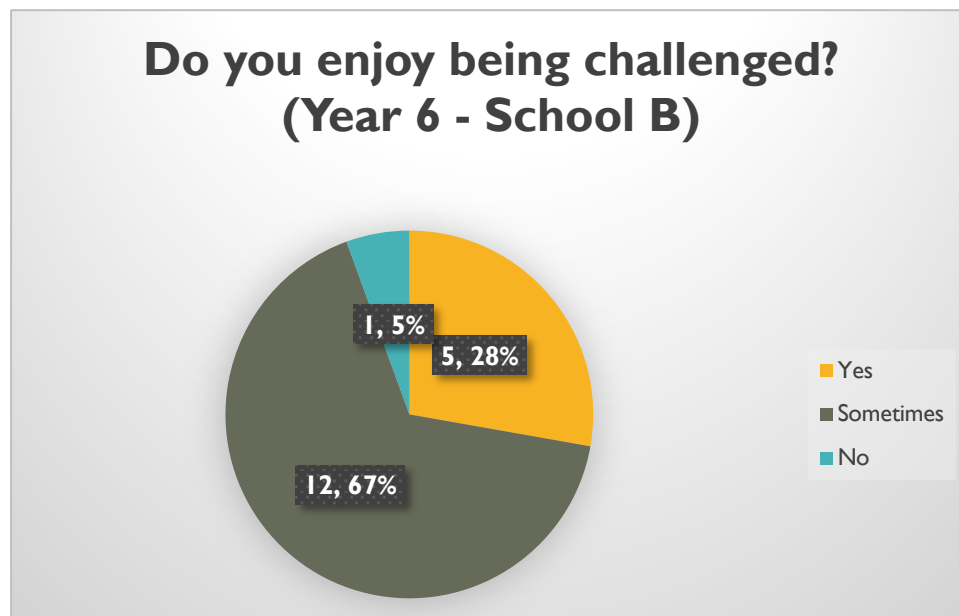
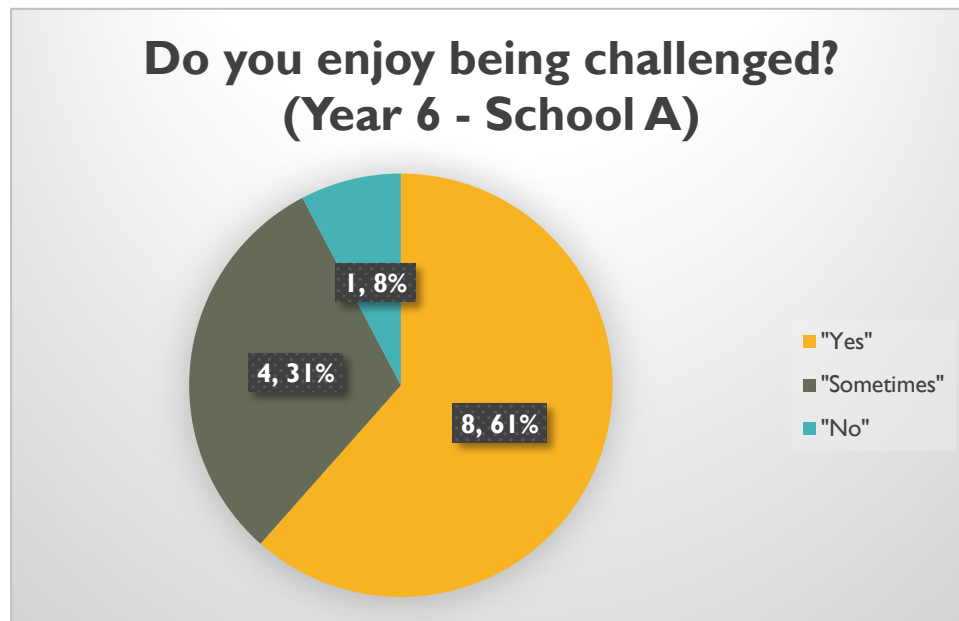
Figure F



Furthermore, quantitative data collected within this research project, that compares the responses from children in school A to those from school B on whether they enjoy being challenged, with this being a suggested characteristic of person who possesses a growth mindset (Duckworth et al., 2007; Hochanadel and Finamore, 2015; Dweck, 2017; Polirstok, 2017; Lai et al., 2018), may potentially provide further insight into whether the development of a growth mindset is affected by a person's resilience. This may be as school A possesses a significantly higher free school meal rate than school B, with approximately thirty-three percent of children in school A being eligible (Estyn, 2016), with only approximately eight percent of pupils in school B being eligible (Estyn, 2018b), with the rate of eligibility being a common indicator of social deprivation within schools (Welsh Government, 2015b). This does however, rely upon the assumption, as noted in chapter two, that a person's resilience may be affected by their socioeconomic position, with those who experience deprivation being more at risk of having lower levels of resilience than those who do not (Cosco, et al., 2016). The results show that from both year groups in which the data was collected, the pupils in school A responded positively to this question significantly more so than those in school B (Figure G), thereby supporting the headteacher's suggestion (appendix g) that resilience may not be a prerequisite to the development of a growth mindset in children.

Figure G





Conclusion

In conclusion, from reviewing current literature and evaluating the results of this author's research, it may be suggested that there are a number of strategies that may be effective in promoting a growth mindset in children (appendices c and k), including Visible Learning (Hattie and Yates, 2014), self-assessment (Black and William, 1998), the modelling of a growth mindset by teachers (Hattie and Yates, 2014; Successful lives, 2015; Dweck, 2017), and effective use of language (Nottingham, 2017; Polirstok, 2017). It is apparent from reflecting upon these strategies, that one notable commonality present is the use of metacognition (Hattie and Yates, 2014; Dweck, 2017; Nottingham, 2017; Estyn, 2018a). Furthermore, it may even be suggested that the process of acquiring a growth mindset involves the conscious decision to monitor and amend one's own thought processes (Hattie and Yates, 2014; Dweck, 2017), which may be in itself a form of metacognition (Costa and Kallick, 2008; Quigley, Muijs and Stringer, 2019).

It has additionally been found that metacognitive approaches may also serve to develop a child's resilience through developing their self-regulatory skills (Hughes et al., 2018; Quigley, Muijs and Stringer, 2019). Therefore, in considering the hypothesis made by this author prior to commencing this research, it may appear that their original assumptions have been challenged, as the results suggest that strategies which support a growth mindset may also promote a child's resilience. In addition to this, the collated research shows that there is evidence to support the notion that a child's resilience is not a prerequisite to their development of a growth mindset (appendix g) (figure G), whilst a growth mindset may support a child's resilience by giving these children the motivation to utilise the strategies and resources available to them (Blackwell, Trzesniewski and Dweck, 2007; Yeagar, Trzesniewski and Dweck, 2013).

Therefore, this author would recommend that to support the development of a child's resilience and to support them in acquiring a growth mindset, schools may benefit from explicitly teaching children to use metacognitive strategies, whilst ensuring that teachers model such approaches to the children (Quigley, Muijs and Stringer, 2019). This may require providing staff with sufficient training (Quigley, Muijs and Stringer, 2019), which may be effectively done through the use of "living examples of implementation, as practised by

teachers with whom they can identify and from whom they can derive the confidence they can do better” (Black and William, 1998, p. 10). Therefore, interschool collaboration may be beneficial, whereby schools who are experienced in delivering such strategies may support those who are less experienced (Armstrong, 2015).

Furthermore, this research has served to strengthen this author’s own practice, as they have gained a greater understanding of metacognition as a concept, and how it can be used to support children’s development, with such understanding being fundamental to effective implementation (Quigley, Muijs and Stringer, 2019). In addition to this, this study has served to encourage the author to explore further into the impact that specific metacognitive strategies may have upon a learner’s resilience, as it has been argued that, “data alone are unlikely to provide solutions to identified issues. Instead they raise questions – the answers to which might provide a solution” (Welsh Government, 2015b, p. 14).

Word count: 6562

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