Children and Families

Milton Keynes Learning Fellowships
Cohort 2: 2010-11
Action Research Enquiries

A second collaboration with
The Centre for Real-World Learning
University of Winchester

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Contents

Introduction

When teachers become researchers something powerful happens. New practices emerge and are evaluated. There is a confidence to try different ways of doing things which fosters innovation in the classroom.

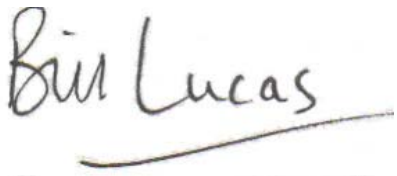
Action Research is a way of working which encourages practitioners to try a new way of doing something (action) and notice carefully what happens (research). Increasingly groups of teachers are finding that action research is a potent kind of professional development which leads directly to improvements in schools. It also 'sharpens' their own professional curiosity.

All of the fellows in the second cohort of Milton Keynes fellows have, in their different ways, taken an interesting issue and explored the ways in which it might benefit learners in their schools. Drawing from both Primary and Secondary experience they have also been able to cross-fertilise each other's ideas and share these more widely within the local authority. In this way the whole experience has been marvellous learning for us all.

The results of the fellows' research give some really useful pointers as to how, through intelligent application of teacher ideas, real improvements can be brought about in tomorrow's classrooms.

By publishing these reports we are paying tribute to the hard work and imagination of this cohort of fellows.

We also hope that other colleagues will be inspired to undertake similar research.



Bill Lucas

Guy Claxton

Greg Morris

If I work with parents to develop growth mindsets, will these qualities be reflected in children's approaches to learning?

Karen Wavish

Simpson School

Issue

Despite promoting a confident and positive approach to challenge in class, I was surprised at a small group of children who displayed powerful pre-determined ideas about what they could and could not do, persistently avoiding difficult or demanding activities. As Dweck outlines:

> 'Believing that your qualities are carved in stone – the *fixed mindset* – creates an urgency to prove yourself over and over.'[1]

If presented with a choice of activities ranging from the familiar and safe to the more challenging, the majority of this group of children would choose the 'easier' option and then demand recognition or reward for having achieved. I was concerned at this apparent 'fixed mindset' in this core group of such very young children, creating a reluctance to tackle anything they deemed difficult. They could become anxious, frustrated and display an alarming lack of resilience/coping strategies. My research endeavoured to explore whether supporting parents to develop a *growth mindset* attitude would, in turn, foster this approach and resilience in their children.

Context

Simpson School is based in an area of high economic deprivation and serves largely housing association homes. The percentage of pupils eligible for free school meals (FSM) is around twice the national average. Pupil mobility is exceptionally high, with as many as a third of the pupils moving into or out of the school during the year. The proportion of pupils with additional educational needs or disabilities is above the national average - many with emotional or behavioural challenges. The school celebrates its *Building Learning Power* status and this permeates all areas of learning throughout the school.

The foundation class has twenty eight pupils with baseline profile levels on entry considerably below national expectation. Several of the children did not register on the early years foundation stage profile (EYFSP) so the class has also been assessed using 'development matters'. I chose a group of five children to be the target group for my research.

Research question

My research began with the question: 'If I work with parents to develop growth mindsets, will these qualities be reflected in children's approach to learning?'

One girl in the group, scoring highly on the profile and very articulate, was fixated with drawing around printed letter shapes and quite repetitive activities that obviously had no challenge for her. It was safe and familiar (she had enjoyed doing that at nursery) and an activity for which she had received recognition and praise. This familiar activity had little scope for challenge. Despite her phonic and writing abilities during class sessions, she resisted being diverted into a more purposeful activity that would stretch her. While other children were animated in the café role play area, making shopping lists and messages, she became very anxious and wanted to be told what letter to write – *"I can't do this writing."*

[1] Dweck, C.S. (2008), *Mindset – The New Psychology of Success*, Ballantine, p6

The children in the target group appeared reluctant to try activities where there was no single clear result or where they perceived any risk of failure. They were apprehensive when faced with new apparatus in PE or a tricky phonic game on the interactive whiteboard – they would request the level that they could complete with ease.

The work of Dweck and Leggett[2] demonstrates two key different patterns of behaviour and learning linked to a series of success or failure experiments. The first, a 'mastery' approach stems from children who positively engage in taxing tasks and will persist with challenge. Those children who are less confident and unwilling to risk failure have a 'helpless' approach to learning. As Hattie concurs:

> 'The willingness to invest in learning, to gain a reputation as a learner, and to show openness to experiences are the key dispositional factors that relate to achievement.'[3]

My project

My research centred on working with parents to support a shift in both their own attitudes to learning and intellect and subsequently to develop a growth mindset in their children. Parents completed questionnaires regarding their own perceptions of learning and also how they felt their child approached learning. I was pleased at how open and honest the parents were about their own experiences and how readily some of them realised that this in turn was impacting on their child's learning disposition. I spoke informally to the children about what they felt like when they encountered something new or got stuck on a tricky activity.

Activities were sent home including cards modelling language to develop growth mindsets. These included story-telling with puppets, a 3D jigsaw puzzle and a Little Red Riding Hood activity using props, puppets and a microphone to recount the story.

One of the key areas I hoped to explore was the effect of process praise. Praise focusing purely on intellect or the end result can have a detrimental effect on the child as they do not perceive learning to be a struggle or a challenge. By constantly telling a child they are clever and brilliant they can become self-doubting and anxious when they encounter something that does not come easily to them. Dweck again:

> 'Parents think they can hand children permanent confidence – like a gift – by praising their brains and talent. It doesn't work, and in fact has the opposite effect. It makes children doubt themselves as soon as anything is hard or goes wrong. If parents want to give their children a gift, the best thing they can do is teach their children to love challenges, be intrigued by mistakes, enjoy effort, and keep on learning.'[4]

Additional information was gained from anecdotal observations from parents and questionnaires and informal conversations with children about their learning.

I also ran activities with the target children. We developed a mantra 'we are all learning together' for when they made a mistake or found something frustrating. When working on a tricky puzzle I would model the language I had worked on with parents:

- This is a tricky one – I like fun challenges
- When you keep working at something you get better at it.
- That was a challenge – well done for not giving up.
- We talked about strategies they could try – turn all the pieces over, find the straight edges and corners, keep looking at the overall picture on the box

[2] Dweck, C.S and Leggett, E. (1988), A Socio-cognitive approach to motivation and achievement, *Psychological Review*, 95, 2, pp256-73
[3] Hattie, J. (2009), *Visible Learning*, Routledge, p47
[4] Dweck, C.S. (2008), *Mindset – The New Psychology of Success*, Ballantine, p176

- Adults within the class worked on process praise during the activities – "That was a good way of tackling that tricky puzzle – you found the edges first."

We worked on tasks requiring perseverance and had some element of frustration, eg. bat and ball skills. I encouraged children to work on improving their own scores, rather than the emphasis purely being on beating their peers: "Can you beat your target of ten bounces? I bet if you try really hard next time you might do it." One of the boys made a tally chart with chalks on the floor and showed me how he had improved.

My findings

Parents completed a questionnaire based on Dweck's mindset questions to explore their feelings regarding intelligence.[5] Their responses indicated an element of 'fixed mindset' attitude.

Number of parents agreeing with each statement

Statement	Strongly agree	Agree	Mostly agree	Mostly disagree	Disagree	Strongly disagree
You have a certain amount of intelligence and you really can't do much to change it			3		1	1
Your intelligence is something about you that you can't change very much		1	2		1	1
You can learn new things but you can't really change your basic intelligence	1	1	1	1	1	

Parents also completed a questionnaire about their own experiences at school and how they reacted now when encountering something difficult. They outlined how they felt their child approached challenges and viewed their learning. I have not included the comments as some of the responses were honest and very personal when describing how they viewed themselves as a learner.

Parents initially followed cue cards I had provided and responses were quite scripted. Over further sessions, parents added their own observations – even suggesting more challenging activities! They were very supportive and welcomed activities to do at home – feeding back thoughts through speech bubbles that came in the packs. There was a distinct change in emphasis and outlook and the children's responses were very positive.

October baseline profile score / March profile score						
	Dispositions and attitudes		Emotional development		Writing	
	Oct	March	Oct	March	Oct	March
P1	2	5	3	7	3	6
P2	3	5	4	6	2	4
P3	3	6	3	4	1	4
P4	3	8	4	8	4	9
P5	3	6	5	7	1	5

The shift in relation to writing was pronounced – an area all the target group had voiced as being something they worried about or not good at. The girl who initially stuck to very outcome-based letter tracing became far more resilient and challenged herself to write her own book about Little Red Riding Hood! The target children were more willing to have a go

[5] Dweck, C.S. (2008), *Mindset – The New Psychology of Success*, Ballantine, p12

and less anxious about making mistakes. During a phonics lesson a child made a mistake and some of the target group said:

"It doesn't matter 'cos we're all learning together aren't we Mrs Wavish?"

Lessons learned

The importance of getting all adults on board quickly became apparent. As a team we consciously made an effort to show ourselves as vulnerable learners and reinforce the notion that learning can be hard, but if we keep persevering we get better at something.

More open ended activities with an element of challenge were planned, such as 'Can you make a vehicle that could fly?' Activities were discussed with parents and suggestions for conversations shared. Children enjoyed using the digital camera to take pictures during an activity. This took the focus away from the finished result and shifted the emphasis to the journey of learning. This avoided responses such as, "That is great, aren't you clever?" Talking to parents about the importance of sharing the process of learning worked really well and conversations were far more animated and open. For example, "You must have concentrated really hard to build that. Can you tell me about how it you built it / how it works?"

Developing process praise was one of the biggest eye-openers but also one of the more difficult elements to get across to parents. Several of the parents felt their child lacked confidence and wanted to increase their self-esteem by telling them how clever they were. This well intentioned praise had previously been reaffirmed in class, for example through reward stickers for learning key words. It was a big shift to focus on the process and talk to the children about what they had learned rather than purely on the end result.

Personal reflections

I initially intended to run workshops with parents to discuss growth mindsets and develop scenarios parents could share at home. However, early on it became apparent that a couple of the parents were overwhelmed with the idea of workshop activities and had their own personal experiences of school to process. We decided to meet one-to-one as they felt comfortable with me and it was a less threatening situation to talk about their own feelings and preconceptions about school, intelligence and the whole process of learning. In the future, I would like to continue to build on relationships with parents in order to develop their own perceptions of learning and develop more confidence.

In conclusion, I found that learning is intrinsically linked with the child's attitude and disposition and it is clear familiar adults have a central role in nurturing this growth mindset. As Dweck says:

'Educators cannot hand students confidence on a silver platter by praising their intelligence. Instead, we can help them gain the tools they need to maintain their confidence by keeping them focused on the *process* of achievement.'[6]

[6] Dweck, C.S. (2008), *Best of Educational Leadership 2007-2008, The Perils and Promises of Praise,* Volume 65, p39

If I explicitly teach talk as part of collaboration, will high ability girls with English as an additional language attain better results in writing?

Kate Truan

Bushfield School

Issue

During my teaching I have noticed that high ability pupils with English as an additional language (EAL) often have difficulty in reaching the higher writing levels. I have noticed that these pupils have often seemed less keen on participating in classroom discussions and volunteering suggestions in our 'getting ready to write' sessions and I wondered if the two factors may be linked. I felt that it was often highly articulate members of my class who become 'leaders' of the group in discussions and that if I asked a question, it would generally be the same hands rising each time, while the rest of the group seemed passive in their learning.

Context

This research was undertaken with a group of 28 Year 3 students at Bushfield School. It was a group of high ability children and seven of these were girls with EAL. Prior to the research I identified four students as the focus of my observations. All four of these girls could speak English well and had a good vocabulary. However, I felt their oral participation in lessons was low and I could see that they were struggling as soon as teaching moved on to include complex sentences and experimenting with word order. They were stuck at a National Curriculum level 2a/3c.

Research question

I am currently a lead *Every Child a Writer* teacher. Part of my training for that role dealt with the link between talk and writing. Pie Corbett believes that there are three key skills that lay down the linguistic patterns:

1. Imitation – experiencing and learning a text orally.
2. Innovation – adapting the text to create something new.
3. Invention – drawing on the internal bank of texts to make up something totally new.[7]

I needed to see if the explicit teaching of talk in each of these skills, linked to collaboration, would have an impact. So I chose to research: 'If I explicitly teach talk as part of collaboration, will the writing levels rise in high ability girls with EAL?'

My project

I used my daily literacy sessions to explicitly link the use of talk and collaboration. I changed my planning, delivery and organisation. I referred to 'Talk for Writing' in the new Primary Framework for extra guidance.[8] It stresses the importance of 'developmental exploration, through talk, of the thinking and creative processes involved in being a writer.' It noted that young, confident writers, 'can hold an internal dialogue with themselves about the possible effectiveness of alternative language choices.' I felt that for my target group, this was the skill that needed developing and for the processes to be made explicit and explored through talk in a supportive, collaborative learning context.

[7] See interview with Pie Corbett at http://www.literacytrust.org.uk/news_blogs/email_updates/interviews/pie_corbett 2010

[8] Talk for Writing (2008) London: DCSF/The National Primary Strategies. Ref: 00607-2008PCK-EN

My first step was to minimise my expectations of the quantity of writing in lessons and concentrate instead on talking and collaborating. This would mean, in the short term, a limited amount of recorded work in books (scary!). However, I felt I needed to get everyone in the mind-set that talking was good and that learning together would make learning more powerful.

To get inclusive participation, I no longer used a hands-up system for pupils to respond to questions. I decided to use *talk partners* as a strategy and in phase one I allowed the children to select their own partners. I would ask a question, they would discuss it and I would then ask for pupils to feed back on something interesting they had heard. We discussed how this used our collaboration skills and we made the link between collaborating, talking and listening. However, I also observed that the pupils always chose the same partner so I devised games to change the talk partners each day. My aim was that the children would hear a range of models of speech and vocabulary and that it would extend the social network of the target group.

Gradually, I extended the use of talk partners from discussing questions to orally rehearsing sentences, so that the target group had good models to follow and imitate. As Corbett says:

> 'Children need to hear extended thought and to work in a range of contexts that encourage them to imitate and develop their own language.'[9]

Although noisy, the room had a positive feel and I could see confidence rising.

I radically changed the way I approached the teaching of writing. Webb states the need for teachers to prepare students to collaborate with others. She identifies the benefits of stating expectations, providing instruction on communicating, reasoning and explaining and altering the status relationships between students.[10] Each time I taught a new genre I would plan collaborative challenges. In pairs the children would be involved in book talk, becoming familiar with the language of the genre. They would take it in turns to read and work together, being text detectives on tasks I had given. These would relate to the craft of the writer – choice of word order, sentence openers, finding clauses, etc. Again, the children would have a variety of partners. The emphasis was placed on talk and finding out together. I gave them books we called 'ideas books': these were not to be marked, but to be used to 'magpie' great ideas they had found - words, phrases or even whole sentences they could use in their own writing. I wanted them to be immersed in good quality language that they could then imitate.

I also used drama to respond to the texts being taught, to encourage talk and see it as oral rehearsal and language acquisition. The children worked in groups of four in these sessions. To begin with these groups were fluid; however, if a task required more than one day, I kept the groups the same to allow for relationships to build. Initially, dominant characters tried to direct and organise the other children. We discussed this explicitly and as a class we worked on drama as improvisation. There was to be no planning or directing, just acting and interacting in role, responding to each other by listening to what had been said or movement made.

My findings

Prior to my research I wanted to find out if my instincts about this particular group were correct. During a literacy lesson a colleague observed the class as a whole and the four children in particular. She completed a behaviour tick chart every two minutes for ten

[9] Corbett, (2008) *Good Writers*, London: DfE, National Strategies

[10] Webb, N, M. (2009) The Teacher's Role in Promoting Collaborative Dialogue in the Classroom. *British Journal of Educational Psychology,* 79, 1-28.

minutes. The results shown in Table 1 (before I started my research) and Table 2 (five weeks into the research) confirmed what I had thought.

Table 1: Children's responses to ten questions asked by the teacher (prior to the research)

	Child 1	Child 2	Child 3	Child 4
Response: hand up	0	1	1	0

Table 2: Responses to ten questions asked by the teacher (five weeks into the research)

	Child 1	Child 2	Child 3	Child 4
Response: pair/share	10	10	10	10

After this part of the lesson I asked the target children, in a guided group, how they felt about getting involved in the talking part of our lesson, asking them:

What do you think about writing?
How do you feel about answering questions?
What stops you putting up your hands to answer a question?
How do you feel when someone is answering a question?

The children were very self-critical and felt they didn't want to make mistakes with their English in front of others. They had a clear idea of who answered well and felt intimidated by them. One child said,

"I can't swap the words round like Anna, I don't know if it sounds right or not."

The questions were a useful insight. It was very informative to listen to the group; it really showed how deflated some felt about others dominating and how under-confident they were.

During the following weeks, I noticed confident pairings and friendship groups. The more we discussed as a group about collaboration and talking and the more the pairs were mixed, the more the dynamics of the whole class changed. Passive behaviour reduced and the target children grew in confidence. Roles began to change during paired tasks, there was a reduction in leader/follower behaviour and focused talk was more evident. By week three, the children were talking confidently and orally rehearsing to themselves or with a peer. They could be seen relishing pinching good vocabulary and ideas! They will now read their written work to an audience before it is marked and will edit it should their partner spot anything wrong.

Drama tested the group's collaboration skills to the limit, but, after a few sessions, the groups really seemed to be listening to each other and noticing movements, even to the extent of predicting who would speak or move next. The styles of talk matched the genre and imitated the language they had acquired in the 'ideas books'.

The writing levels of the target group have risen considerably and the four target children are now writing at the same level as their peers in the class. Two of the children are now regularly writing at National Curriculum level 3a and the other two often show features of level 4 in their narrative writing. All the pupils experiment with word order and are better placed to 'hear' if it sounds right.

I interviewed the children, again in a guided group, five weeks into the study. They all felt that their ability to collaborate had improved, as shown by their responses to the questions:

"How has using more talk helped you collaborate?"

"Well, I used to be a bit of a lazybones and let other people think of an answer, now I can't do that because my partner needs to hear my ideas."
"I work with lots of people now, not just my friends. I used to just pick my friends but we play games and I can't always do that."
"In drama, you can't boss, you have to watch and listen to each other, that's hard, but good and it's fun. I know everyone better."

"How has using talk helped you write?"

"Well, when I say it out loud I can hear if it sounds OK now and if I don't know I'll say it to someone else. I used to just put it in my head."
"It gets you thinking and you can steal other people's imaginations and words!"
"If I'm not sure how I want to write, I say it out loud to myself and switch things about till I sound posh. I make mistakes in the air, not in my book - that's good"

I feel that the explicit teaching of talk alongside collaboration has had a positive effect on my whole class. The ethos of the room has changed. I have seen some of the quieter children speaking up and the target group participate more in all parts of the lesson. We no longer need a specific talking part in the lesson – talking is fine in all parts.

Lessons learned

I would encourage teachers to allow children to have time in literacy for well-planned talk as part of collaboration. I know that they will feel nervous about evidence not being in books initially, but the payback in enthusiasm and writing quality in the end is worth the risk. Placing more emphasis on collaborative tasks encourages purposeful talk where pupils' language acquisition builds.

However, I also noticed that one or two of the more dominant children in the class, for a short while, dipped in confidence. When I questioned them, they felt other children had become 'more clever' whilst they had stayed the same. In discussion, one child said:

"Maybe I didn't realise how good Ameerah was 'til I was her talk partner "

I would therefore advise that regular feedback sessions are needed.

Personal reflections

I have relished the chance to take a critical look at learning in my classroom. The research has allowed me to review my classroom practice. Investing in talk time as part of collaboration really has an impact on writing, the levels attained and the classroom atmosphere, where writing becomes something to be talked about, shared and enjoyed with others. Our classroom is one where language has been acquired through collaborative tasks and where we have had great fun!

If I explicitly teach collaboration will children be able to collaborate well during free activities?

Lindsey Macdonald

Bushfield School

Issue

During my teaching I have noticed that the majority of children tend to collaborate well in small peer groups when the activity is guided by an adult. However, I have also observed that during non-guided or free activity many children struggle to collaborate. This can manifest itself in a variety of ways including: not participating, working independently, being distracted by an off-task activity or taking over. It is often highly articulate members of my class who become 'leaders' of the group and do the majority of the work with little help from others in the group.

I wondered if teaching collaborative methods and providing activities designed to encourage effective collaboration could alter this pattern in free activities.

Context

This research was undertaken with a Year 5 class of 23 students at Bushfield School. Prior to the research I identified three students on whom to focus my observations. Two of these students are very articulate and often lead group tasks. The third student is much quieter and generally shies away from speaking in front of groups of children or taking on roles of responsibility.

Research question

The question I chose to work on was: 'If I explicitly teach collaborating will children be able to collaborate well during free activities?'

I have observed that the children in my class tend to conform to a self-appointed role when taking part in child-led group activities. The articulate and confident children immediately take control and generally end up doing the majority of the work while the rest of the group either watch, complete the task independently or are off-task.

The benefits of group learning have been shown through a range of educational research including Angela O'Donnell[11] who reviews numerous perspectives on how peers promote learning. She comments that peer learning can enhance critical thinking, conceptual understanding, and higher order skills.

The report of the Teaching and Learning in 2020 Review Group[12] identifies the importance of peer learning as one of the foundations for:

> '…collaborative relationships which encourage and enable all pupils to participate and which develop pupils' skills of working independently and in groups, enabling teachers and pupils to move learning forward together.'

In a recent article, Willingham[13] identified the importance of equal turn-taking within a group. Willingham states that when conversational turn-taking is shared the group intelligence is higher.

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[11] O'Donnell, A. M. *The Role of Peers and Group Learning* in Alexander, Patricia A. (Ed); Winne, Philip H. (Ed), (2006). *Handbook of educational psychology*, (pp. 781-802). Mahwah, NJ, US: Lawrence Erlbaum Associates

[12] August, K. et al. (2006): 2020 Vision: Report of the Teaching and Learning in 2020 Review Group'

[13] Willingham, D. *How to teach collaboration*. In Strass, V. (2010) The Answer Sheet, [online]. Available at: *http://voices.washingtonpost.com/answer-sheet/higher-education/willingham-how-to-teach-collab.html*

The benefits of group work are undeniable; however, in my observations, the majority of children are not naturally good at collaborating. This would suggest that it is an area that needs explicit teaching, rather than expecting children to develop these skills naturally.

Webb states the need for teachers to prepare students to collaborate with others. She identifies the benefits of stating expectations, providing instruction on communicating, reasoning and explaining and altering status relationships between students.[14]

From the research studied and my own observations I identified three elements of collaboration on which to focus with the children to help them develop their ability to collaborate: empathy, turn taking and giving and receiving feedback.

Guy Claxton offers a model for real life and life-long learning with the Building Learning Power (BLP) framework.[15] During my research, Bushfield held a day for parents and guests to come and observe BLP being used in the school. My year group focused on collaboration and problem solving. During the sessions I was able to observe groups of children from different classes collaborating; my observations from my own class were confirmed through watching the group dynamics of the other classes.

My project

I used Monday morning sessions to teach the children a particular aspect of collaboration: turn taking, empathy or giving and receiving feedback. We then practised this skill in groups of four to six with a game, challenge or activity. After the activity we discussed the skill being practised and talked about how it could help us in the future. The children were then given time to create a free activity during which I observed my target children.

I provided the groups with a range of resources for them to create their own activity. The children would be allowed to create their activity based on the resources and have around ten minutes to carry this out. The resources were all centred around French as I thought this is a subject with less negative self image attached. This reduced the effects of some children feeling they could not contribute as much as others in a higher set.

While the children were planning and trying their activity I observed the class as a whole and the three children in particular. I completed a behaviour tick chart every three minutes on each of these children and made notes on their behaviour and participation in the activity.

After the activity the groups completed a questionnaire on their group's collaboration. This included questions designed to focus on the three elements of collaboration we had identified as essential to effective group work. Children then completed a set of questions on their own ability to collaborate; they rated their own attitude and behaviour on a Likert scale (the most widely used scale in survey research; respondents specify their level of agreement with a given statement). After the last session I carried out interviews with five of the children – the three in my target group and two others.

[14] Webb, N, M. (2009) The Teacher's Role in Promoting Collaborative Dialogue in the Classroom. *British Journal of Educational Psychology*, 79, 1-28

[15] Gornall, S, Chambers, M and Claxton, G. (2004) *Building Learning Power in Action* Bristol: TLO

My findings

I used a range of techniques to find out the effects of the changes.

Whole class observations:

During the first session the children struggled to think of an activity with no teacher input; several of them asked for help or said they were stuck. I reminded them that it was their choice and I was 'out of bounds'. The class quickly understood the concept of the task and all groups were able to plan and carry out an activity.

Over the seven sessions the class became more clinical when deciding what activity to create from the resources and how to show collaboration through their task. The groups were more articulate when discussing collaboration and their own and other children's feelings.

Group questionnaire:

The questionnaires were a useful insight. It was very informative to listen to the groups as they filled out these questionnaires as it would often instigate conversations about how group members felt and how their collaboration could improve.

Individual questionnaire:

After the initial session these questionnaires remained fairly consistent throughout the research. There was some improvement in children's perception of their own collaboration ability. However, I feel that the children became more aware of their ability to collaborate and thus the areas which they needed to improve on.

Target children observations:

I found it very interesting observing these children during their task and I noticed a range of behaviours that I had not initially considered. A surprising behaviour was the body position of different children: for much of the first two sessions the two articulate children stood up – instantly grabbing the attention of the rest of their group. The quieter child remained seated throughout the activity and only offered an opinion when asked directly.

The children's behaviour confirmed many of my assumptions about the individual. However, as the sessions progressed a subtle change began. One of the activities which had an effect on these children was giving them named positions in the group. I engineered the task so the children would get a role that was not normally expected of them, these included: leader, feedback manager, facilitator and resource manager. The target children all carried out their roles and demonstrated behaviour that matched their position. This gave some of the quieter students a chance to be a leader and improve their confidence within their group.

I noticed that the target children's groups were becoming more equal with their turn-taking and the children were discussing when they felt that something was not fair.

Student interviews:

The student interviews produced some detailed thoughts and opinions about our collaboration training and BLP in our school. I interviewed the children in a group as I felt they would be more relaxed and forthcoming in this environment. They all agreed that their ability to collaborate had improved. Responses to the question 'Have these sessions helped you to collaborate?' included (the first quote from a pupil who joined the class this year with no prior BLP experience):

"I'm better at empathising now because, before if someone was sitting doing nothing I would have left them alone. Now I know to how they might be feeling and how to include them."
"I like it, good idea because at my other school people didn't get on as well in lessons; you just did what you needed to do."

Questionnaires:

Prior to the research I gave the children a questionnaire for them to rate their own ability to collaborate. The majority of children rated themselves as 'good' or 'very good' at collaborating. After the first session of research, where we identified the main elements of collaboration and discussed what good collaboration would look like, the children completed the same collaboration questionnaire. The children completed a final questionnaire after the research; it showed a very similar trend in self perceptions. I feel that the children were generally more self critical when rating themselves as their understanding of collaboration developed. The results of the collaboration questionnaire, prior to and after the research, are shown in the table:

This is how good I am at collaborating:

	Very bad	Bad	OK	Good	Very good
Before the research		1	5	11	4
After the first research session		1	7	13	1
After the research			8	13	1

I feel that the explicit teaching of collaboration techniques has had a positive effect on my class. I have seen some of the quieter children speaking up and taking charge, and some of the articulate children being content to support others and not be the leader.

One factor that may have contributed to the behaviour changes is that I kept the groups the same for each session. This encouraged the children to be more relaxed and comfortable in their group and may have magnified the effects I observed.

Lessons learned

I plan to share my findings within the school and encourage teachers to allow children to have some time for free activities to practise collaboration and other BLP approaches. My school has a timetabled session for BLP activities each week and I will encourage teachers to build up a bank of resources which could be used for child-led tasks.

I have also seen the importance of children feeding back how well their group collaborated. This was a key time in my class, in which children shared how they felt and how they thought their group could improve. The group questionnaires led to a range of conversations that would otherwise be very hard for teachers to instigate and this is a tool that I will be using and recommending to Bushfield staff.

Personal reflections

This research has been surprisingly fascinating. I have enjoyed the chance to take a critical look at learning in my classroom and have time to try and improve it. The research has allowed me to view my classroom and students as a malleable entity which can be changed and enhanced. It has reminded me of the significance of attitudes in the classroom. In this small study I have seen the importance of research in keeping teachers motivated and aware of new theories and practices.

Is a fixed mindset the reason that a group of able children have stopped making progress ie. their progress has plateaued?

Katie Hudson

Simpson School

Issue

Simpson School has been working with the Building Learning Power (BLP) approach since 2007. We began by providing the children with activities specifically designed to use one of the BLP 'capacities', before working to ensure that the approach was occurring in all lessons and that BLP was infused into every aspect of school life. The Year 6 children involved in my study have now had four years where we have been actively trying to give them positive learning habits. While this has had a positive impact on some of the class, enabling them to make progress, the children that I chose to work with had not made similar progress. My research endeavoured to determine whether beginning to change a child's mindset can help them to make progress. This is particularly relevant to Year 6 children because they sit the SATs tests.

Context

Simpson School serves one of the most deprived areas of Milton Keynes. Pupil mobility is exceptionally high, affecting up to a third of the children in any one year, and the number of children eligible for free school meals is twice the national average. The number of children identified as having special educational needs, including severe behavioural and emotional needs, is also above the national average.

Many of our parents express negative views towards their own schooling and, in many cases, their children have adopted these views. This study looked at six Year 6 children - three boys and three girls. These were identified as being able children whose progress had stalled over the last twelve months in the key academic areas of reading, writing and maths. In class, they avoid challenges and actively seek to work within their comfort zone. When 'pushed' with challenging work, they will often turn to disruptive behaviours to avoid attempting the task at hand. They are, in essence, able children who display the characteristics of Carol Dweck's *fixed mindsets*.[16]

Research question

I began with the question: 'Is a fixed mindset the reason that a group of able children have stopped making progress, ie. their progress has plateaued?'

In her 2010 London lectures, Carol Dweck outlined the two distinct attitudes towards learning that can, she argues, be found in people. The first is that of the fixed mindset. The fixed mindset person's focus is on proving their ability or level of intelligence, and all energies are put into the attainment of a particular level or score. The alternative view, the *growth mindset*, sees the process of learning, rather than the 'test score', as the final goal.

In her research, Dweck found that two distinct patterns of behaviour are attributable to the two mindsets. With the fixed mindset, because of the need to live up to the expectation of intelligence placed upon them, the learner takes the view that achieving should come easily. If this does not happen, the fixed mindset person will falter and seek to avoid the challenge:

> *"I would try not to take this subject ever again. I would try to cheat on the next test."*[17]

[16] Dweck, C.S. (2008), *Mindset – The New Psychology of Success*, Ballantine, p6
[17] Dweck, C.S. (2010), Norway Lectures, PowerPoint presentation

In contrast, the growth mindset person sees learning as their goal and energies are placed on learning more. Rather than seeing intelligence as a fixed commodity, the growth mindset sees intelligence as 'expandable' and recognises that 'talent is a starting point.'

As a result, growth mindset students state:

> *"I would work harder in this class from now on. I would spend more time studying for the test."*

The challenge remains of how to develop a growth mindset in children who are showing the behaviours of a fixed mindset. The growth mindset must be developed in order to realise increased performance. In his work on BLP, Guy Claxton offers a clear framework that can be used to develop and nurture strong learning habits. He describes four dispositions of learning which, between them, contain seventeen capacities designed to improve the learning habits of children and adults. His research in devising this framework draws heavily on Dweck's thinking and focuses children, and the attention of BLP teachers, on the processes of learning as much as on the outcomes (scores, results, average point scores, etc). This focus on the process of learning also becomes very clear in the thinking of Chambers and Gornell where clear scripts are given to teachers and support staff to assist in their everyday interactions and discussions with pupils. Adults become positive role models for learning as they:

> 'Share their own difficulties, frustrations and triumphs in learning.'[18]

All the time, as suggested by Dweck, they focus on praising, rewarding and drawing attention to the learning taking place, not the performance. They nurture the view that everyone can expand their intelligence with effort.

My project

My project centred on working with six children in my Year 6 class to nurture a change in mindset from fixed to growth. I chose this group as they were able children who were not achieving as well as they should. It was clear that before they could begin to make progress again, their mindsets had to be changed.

The children completed a questionnaire at the beginning of the research which showed their attitudes towards learning at that time. The children were happy to speak openly and honestly about their attitudes towards intelligence and the way in which they work with other people.

Over the term, a series of collaborative activities were set up to develop the children's learning habits. I hoped that if they could learn to work together instead of disagreeing and arguing, they would begin to become curious about learning and focus their efforts into finding out more. Thus the shift from fixed to growth mindset would have begun.

During these activities, all the adults that worked with the children would be using focused BLP language to develop collaboration. This could take the form of questions or reminders such as:

> *"How could you help each other? Can you add your ideas to this? I know you're excited about this, but if you all talk at the same time we won't hear all the good ideas. It's okay to ask other people for help."*

The children would then be praised for respecting other people's views, listening carefully and turn-taking.

[18] Gornall, S, Chambers, M. and Claxton, G. (2004) *Building Learning Power in Action* Bristol: TLO

To begin with, the children worked in separate groups alongside other children who had a better grasp of collaboration and already exhibited growth mindsets. This enabled them to learn from others. Once the children had had an opportunity to practise these skills, they were then put into groups together. When working together, they were particularly challenged as they all had an affinity for the leadership role and did not like their ideas and opinions to be challenged.

Between the activities, the focus children spent some time discussing their feelings and difficulties with a teaching assistant. These anecdotal observations helped me to analyse the views of the children and determine the next course of action. They were also given strategies to help them cope with the difficult feelings they encountered. We worked on activities where there was a clear 'right' way to achieve the goal, such as baking cakes and mixing juices, as well as activities where there was no 'right' answer, such as how to stop an egg from breaking when dropped from a height.

My findings
The children completed a questionnaire based on Dweck's mindset questions to explore their feelings regarding intelligence.

Number of children agreeing with each statement

Statement	Strongly agree	Agree	Mostly agree	Mostly disagree	Disagree	Strongly disagree
You have a certain amount of intelligence and you really can't do much to change it		3	3			
Your intelligence is something about you that you can't change very much		2	1		3	
You can learn new things but you can't really change your basic intelligence		2	2	2		

The children's responses indicated that they had a fixed mindset towards their own intelligence. The children who thought intelligence could be changed referenced another child in the class who they had seen increase his intelligence. However, when discussing their own intelligence, rather than intelligence in general, they reverted to the opinion that intelligence was a fixed quantity.

The table below shows the progress made by the children. The school had put a particular focus on writing while the children were in Year 5 which would explain the amount of progress shown in this area in Year 5 compared with the other subjects. However, the data shows that most children made less progress than the expected two National Curriculum sub-levels per year.

After the activities and the discussions with the children about their learning habits and how they could improve, most children made the expected progress, if not more. Unfortunately, Pupil 4 was unable to make accelerated progress in relation to his previous year's achievement because of behavioural issues and, I believe, his slower conversion from fixed to growth mindset.

Number of sub-levels of progress made by each child in the target group

	Reading		Writing		Maths	
Pupil	**Year 5**	**Year 6**	**Year 5**	**Year 6**	**Year 5**	**Year 6**
P1	1	4	3	3	0	3
P2	0	2	1	3	1	1
P3	0	3	1	4	1	3
P4	1	2	3	1	1	1
P5	1	1	2	3	1	3
P6	1	1	3	2	1	2

When discussing their progress and current attitudes towards learning and collaborating, one child said:

"I like being a worker because I like doing things at all times."

Another recognised that she had become a better listener because:

"I hate it when people don't listen to me."

Lessons learned

It was apparent from the start that children's mindsets have a huge influence on their ability to absorb the learning and make progress. As a team, we consciously made an effort to set up situations where the children were forced to develop their positive learning habits in an attempt to shift their mindsets from fixed to growth.

Instead of allowing children to take roles within groups that were familiar to them (leader, worker, recorder etc), we supported them in taking on different roles. While outside their comfort zones the children learned to be more resilient; this in turn allowed them to attempt some of the more challenging work without the fear that they would fail or 'look silly'.

Where children make good progress, it is because they have developed a growth mindset and are ready to partake in learning. When children cease making progress, it could be because they have developed a fixed mindset. This could be due to home circumstances, the pressures felt in school or simply because they feel unsure about a situation. However, whatever the cause, the fixed mindset must be converted to a growth mindset before progress can be seen again.

Personal reflections

I set out to change the mindsets of a group of children, hoping that this would lead to their making progress. I was aware that children's ability to learn and progress had a direct link to their attitude and mindsets. It became apparent during my project that familiar adults play an important role in shaping this mindset and, if the need arises, changing it. Fundamentally though, the child must be willing to engage in the activities and the learning.

Does teaching mathematics by stealth improve lower attaining pupils' mindset and approach to the subject?

Natasha Clark

St. Paul's Catholic School

Issue

Often, in my experience, pupils have struggled to find reasons for the mathematics that they are learning and have disengaged during lessons for this reason. In addition to this, lower attaining pupils will often appear to decide that the mathematics is too difficult for them, resulting in a lack of 'attack skills' and motivation.

Context

St. Paul's Catholic School is a large secondary school which accepts pupils from across Milton Keynes and beyond, from varied catchment areas. I decided to focus my research on a Year 7 class that I currently teach. The class is the fourth set out of five in terms of attainment. It contains 21 pupils, with ten having been identified as having a special educational need. The latest set of assessment results prior to my research showed that the pupils' mathematical attainment ranged from National Curriculum level 2.3 to level 4.9.

Research question

My project began with the focus squarely on adding a 'real life context' to my teaching and to the activities given to the pupils. This was based on the idea that pupils needed to see a reason for the lesson that they were learning, giving them an authentic experience. It is felt that a large proportion of pupils cannot see the link between what they are learning and how their learning will benefit them or help them in the future.[19]

My reading began with a look into the *Realistic Mathematics Education (RME)* system that is used throughout the Netherlands. The system uses realistic contexts to present mathematical problems, aiming to formalise the learning as the learner moves through the problem, rather than making the mathematics formal from the beginning.[20] The key feature of this approach is that pupils stay within the context, making sense of the mathematics that they are using without having to learn formulae and rules by rote.

My reading continued and took me to the work of Jo Boaler, who followed the learning of many pupils over the course of their secondary education. Her research found that the approach used to present the mathematics and the type of question or activity were vital factors in the success of the pupils.[21] Pupils were far more successful in their learning and application of knowledge when the mathematics was presented as a tool to solve a problem. Pupils were given a situation or question to work through and discovered that the mathematics was vital in finding a solution. The skills that they were learning had a purpose, were identified and developed alongside common sense and intuition, rather than as a formal set of rules which would be practised and applied at a later date.

I was inspired by my reading and felt I should find a way of combining these two approaches in order to help my lower attaining pupils to make the progress that they desired. Both of the ideas almost hid the mathematics from the pupils, making it a part of a process rather than an end goal. I wanted to see whether or not this could help remove the 'I can't do mathematics' approach that some of my pupils displayed. The idea of deciding not to try

[19] Hull, D. (1999), *Teaching Mathematics Contextually, The Cornerstone of Tech Prep*, Waco, Texas: CORD
[20] Dickinson, P. (2010), Using Realistic Mathematics Education with low to middle attaining pupils in secondary schools, *Proceedings of the British Congress for Mathematics Education,* Vol. 3, No. 1
[21] Boaler, J. (1997), *Experiencing School Mathematics: Teaching Styles, Sex and Setting*. Buckingham: OUP

something for fear of failure echoes the work of Carol Dweck as she investigated mindsets.[22] Pupils with a fixed mindset will:

- avoid new challenges;
- see past failures as proof that they will fail in the future;
- see mistakes as unacceptable.

These are frequent occurrences in mathematics teaching, particularly among those in lower attaining classes. I hoped that by bringing in the 'stealth' element, we could begin to change some of these mindsets.

My Project

Over the course of a half term, I changed the way that I presented the mathematics to my class. We worked within the context of Maths and Citizenship, tying in the lessons we had planned with what was going on in the world at that time. One of the areas we looked at was the national census that took place in the spring of 2011; instead of introducing data handling techniques such as writing a questionnaire and interpreting charts, we started by looking at the purple census envelope that had been delivered to their homes. Pupils began to ask questions about why the census was needed, what their parents had to do with it and how the results could be used. This led us into interpreting the results from the past century and creating our own class census. Another lesson that we used was based on planning a wedding. We discussed Prince William's forthcoming wedding and talked about how big a job it would be to organise such an event. We then planned our own version of the wedding, calculating costs, designing layouts of the reception and the tables and planning a timed schedule for the day. Throughout the series of lessons, the mathematics was not made explicit until after it had been used. Pupils carried out the tasks and then reflected on the skills that they had used. Some of the comments from the lessons included: "How come we aren't doing maths?" and, "Do we have to do maths after we have done this?"

In order to try to quantify how this change in approach was affecting the pupils, I used two different data collection methods. The main method used was a questionnaire given to the pupils both at the beginning and end of the intervention. The questions used a Likert scale, and asked pupils to place themselves on the scale in terms of their mathematical ability and their belief that they could improve it. The questionnaire also asked pupils to describe mathematics in one word, and to pick a photo that was closest to how they felt about the subject.





[22] Dweck, C.S. (2006). *Mindset: The new psychology of success,* New York: Random House

The questionnaire was also used to identify which pupils had a closed mindset; four members of the class said that they did not feel that they could get better at mathematics. These pupils were then observed during three lessons over the course of the intervention by an experienced member of staff. He noted how quickly they started a task and monitored their engagement throughout the lesson.

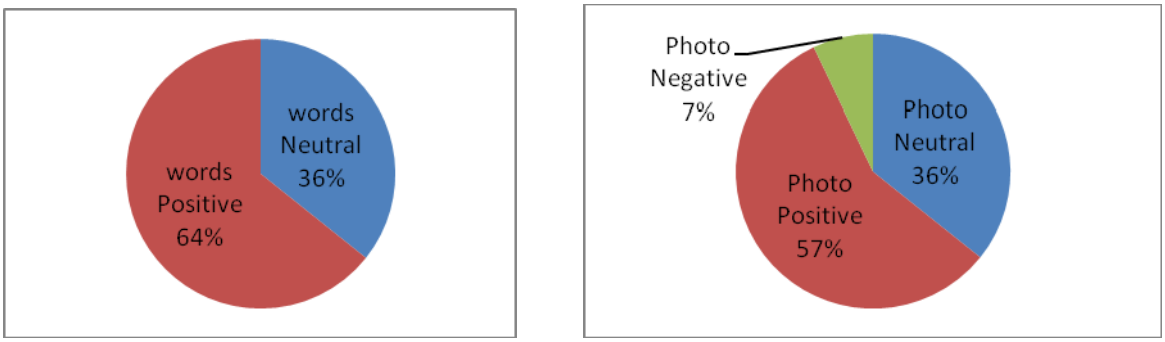
My findings

The feedback from the observations showed that our four focus pupils made a huge increase in terms of how quickly they began work and the time they stayed on task. Our focus group improved the proportion of time on task on average from 69% to 87% over the six week period. The observer also noted that the pupils were asking for help from me less often and were working more collaboratively by the end of the intervention period than they had done at the beginning.

The final questionnaire showed that 56% of all the pupils in the class had changed their photo choice in a positive way and 64% had changed their word descriptor in a positive way; one pupil changed their photo choice in a negative way and the rest of the class stayed as they were for both the photo and word choice (see Figure 1 below). Of my four focus pupils, two changed their photo choice positively and the other two stayed as they were; however, three of them changed their word descriptor in a positive way.

The results from the questions using the scale were surprising at first. One pupil from our focus group moved himself up three points on both of the scales, showing that he now thought himself to be good at maths and that he believed that he had the potential to improve further. The others in our focus group moved up one place or stayed where they were. I had expected them to show more of a movement - however, on reflection it may be that the pupils had not made the link between what we had done in class and their mathematical ability. As I noted earlier, many of the pupils felt that we were not doing maths in the lesson so it follows that they would not see that they were improving in maths in spite of increased engagement and attack skills.

Fig 1. Changes pupils made in describing maths through words and picture choices



Lessons learned

Overall it is clear that this approach has contributed to an increased sense of confidence in the pupils and an improvement in enjoyment as the photo choices and word descriptors have shown. The 'stealth' element did help pupils to get past their fears and to begin their tasks more quickly with less fear than they would normally display. I believe that we have started to improve the mindset of our class; however, there is still work to do for all pupils to display open mindsets towards the subject.

Personal reflections

Making the link between in-class mathematics and the mathematics of the outside world is important if pupils are to achieve their potential.[23] Planning and presenting my lessons in this way helped to make these links more obvious and reminded me of just how much mathematics is out there.

I will continue to teach in this way, as it has rejuvenated me and I have really enjoyed bringing the real world into my classroom. I do feel that in the future I will need to make the links between the tasks that we do and the formal mathematics much clearer in order for pupils to realise that they are making progress in terms of the subject. There is a delicate balance between the 'stealth' element and the need for pupils to realise that they have done mathematics, in order for them to have improved confidence in the future, and to develop a mindset of mathematics that is more open and less wary.

[23] Boaler, J. (1997) op cit

If students are encouraged to identify and celebrate positive attitudes and behaviour will their effort and motivation increase?

Beverley Stockbridge

Stantonbury Campus

Issue

'At every stage of compulsory education, the overall gap in attainment between Free School Meal (FSM) pupils and their non-FSM peers is a significant cause for concern……Whilst the achievement gaps for other groups have closed, the FSM pupil group has remained relatively static and as a result is now one of the most underachieving groups in our school population.'[24] In line with this national picture, analysis of school data indicated that many FSM students at Stantonbury are underachieving.

Context

Stantonbury Campus is a large comprehensive school of 2500 students with approximately 17% students on FSM in the academic year 2010-11 (this number fluctuates as students leave and arrive and as parental circumstances change). The group identified for my research were from Year 8 and consisted of nine underachieving students (identified from data collected in the previous academic year) of whom six were FSM students.

Research question

The research question: 'If students are encouraged to identify and celebrate positive attitudes and behaviour will their effort and motivation increase?' developed from conversations with students which revealed a discrepancy in their declared aspirations and their level of effort and motivation. The aim of the action research was to identify reasons for underachievement and to find out whether small scale interventions could help these students to make more effective progress. Having read work by Carol Dweck[25] on mindsets I became interested in helping students to recognise and develop positive attitudes and in finding out if this would lead to increased motivation and effort.

My project

Analysis of existing school data identified nine students in a group who had been rated as underachieving for effort, homework or behaviour in Year 7 (see Table 1 below).

[24] Pockets of poverty – DCSF (2010) 'The challenge for schools with small proportions of FSM pupils'
[25] Dweck, C.S. (2006). *Mindset: The new psychology of success,* New York: Random House

Table 1: Students who were rated as underachieving for effort, homework or behaviour in Year 7

		Year 7 2009-10								
		Assessment Period 1			Assessment Period 2			Difference between Assessments 1 and 2		
M/F	FSM	% Effort	% H/wk	% Beh	% Effort	% H/wk	% Beh	% Effort	% H/wk	% Beh
M1	Y	48	33	51	45	21	54	-3	-12	3
M2	N	69	51	69	60	33	54	-9	-18	-15
M3	N	48	48	39	48	36	45	0	-12	6
F4	Y	72	54	81	63	42	81	-9	-12	0
M5	Y	60	30	48	36	21	27	-24	-9	-21
M6	Y	63	45	69	60	33	54	-3	-12	-15
M7	Y	63	33	57	63	36	48	0	3	-9
M8	N	84	69	81	57	60	51	-27	-9	-30
M9	Y	60	30	70	60	26	73	0	-4	3

Students were assessed by their subject teachers and given a rank for effort, homework and behaviour twice in the previous academic year. These rankings were converted into a percentage and ranked green (good) amber (satisfactory) red (cause for concern). The differences between the two assessments were also ranked in the traffic light system (red in the difference column indicating deterioration). These nine students were the focus group for the research.

The students were asked to complete a questionnaire about their attitudes to learning and to their individual role in ensuring that they were successful at school. All students claimed that their education was important to them and that they wanted to be successful (see Table 2 below).

Table 2: Extract from questionnaire given to the group

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
My education is important to me	9				
I want to be successful	9				
I work towards achieving my goals	1	5	3		
I think I could improve my schoolwork	4	4	1		
I think I could improve my homework	4	5			
I think I could improve my behaviour	6	2	1		

Students were then interviewed individually to determine their views. Questions based on the **GROW** model[26] helped students to identify that their **G**oal was to succeed, but the **R**eality was 'red traffic lights'. The initial **O**ption identified by students was 'to try harder'. On reflection they identified lack of motivation and peer distractions as reasons for underachieving. This led to the conclusion that students would value:

a) Support from their peers, specifically reminders to seek positive involvement and engagement in lessons.
b) Some encouragement from parents and staff, specifically praise for positive effort.

[26] National Strategies, DCSF (2010): Progression skills module 3: Getting ahead – strategies for success

In considering **W**hat they should do, it was decided to introduce the following interventions:

a) Students completed a daily success journal; they recorded a positive comment for the previous day, based on something of which they were proud.
b) Each of the nine students selected a 'buddy' who would seek to be their partner and record positive comments/actions in the success journal.
c) Teachers and parents were also invited to record positive comments. Parents were informed and invited to participate at a scheduled parents evening.

A total of 21 students completed the success books and the questionnaires. At the end of the term students repeated the questionnaire, with additional questions relating to the success journals. Individual interviews were also held with targeted students to assess the impact of the interventions.

My findings

1. The nine target students all felt that they had benefited from the exercise and that they had begun to take more responsibility for their own effort and behaviour in the classroom (see Table 3 below). (The one student recording 'not sure' below did not have any behaviour problems and therefore did not 'improve').

Table 3: Target students' views of the success journals

I think the success books have helped me to improve…	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
… my effort	4	5			
… my behaviour	3	5	1		
… my homework		3	6		

2. Teachers recorded more positive and fewer negative events on the behaviour management system for the targeted students and for the group as a whole. Many students recorded that the learning environment had improved.
3. There was no difference in the responses from the underachieving students who did not receive FSM and those who did.
4. There was little perceived impact on homework.
5. Students who were not underachieving did not value the process in the same way as the nine students above who were underachieving (see Table 4).

Table 4: Other students' views of the success journals (twelve students)

I think the success books have helped me to improve…	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
… my effort	3	1	6	2	
… my behaviour	2	1	6	3	
… my homework	1	2	6	3	

Lessons learned

Four main outcomes emerged from the research:

- Students want to do well and will respond to the challenge to take responsibility for their progress.
- Students value positive peer support and respond well to structured ways of offering encouragement.

- The underachieving students were motivated to change when they saw the discrepancy between their aspirations and their achievement.
- Students who did not identify a personal need to change did not value the process as much as the targeted students and did not feel the interventions helped them to make progress.

Personal reflections

The aim of the intervention was to encourage students to take more responsibility for their application to learning and to increase motivation. Students were encouraged to focus on progress; to identify small positive achievements; and to recognise that these combined to increase their overall success. The aim was to begin to develop growth mindsets by developing a more positive view of what constitutes progress.[27] The interventions were deliberately designed to be replicable and sustainable with any group of underachievers and were based on the belief that classroom culture is influenced by 'the values and behaviours of the class group, of the teacher and of parents.' [28]

The whole-school traffic light data to be collected in July will also give a measure of the impact of the interventions, when compared with data collected in January before the interventions took place. The targeted students have set individual goals for improvement in the traffic light system (eg. move from 36% to 65% for effort). All nine students are aiming for green traffic lights in the difference column, indicating progress has been made.

This was clearly a preliminary pilot study but it does seem to indicate that students responded positively when encouraged to value their positive achievements:

> *"It helped me to think about the good things I do rather than when I have done it wrong".*
> *"It is good to think about the things I have done well – I've not really done that before".*

The outcome of the research will be shared with colleagues who will be encouraged to use time in registration to allow students to reflect on actions or events from the previous day of which they are proud. I have begun to use the technique of reflecting on personal satisfaction and fulfilment in my own teaching groups, encouraging students to think about, and to record areas of success which are not necessarily related to grades (eg. I was proud of the idea I had for my essay rather than a focus on the final mark). I am also developing the 'buddy' system in teaching and tutor groups to encourage students to value positive behaviour and achievements in their peers (eg. Mark's idea really helped our group). I believe that these simple steps will facilitate a more positive learning environment to the benefit of all students including underachieving FSM students.

As Dweck says:

> 'Evidence increasingly suggests that the goal an individual is pursuing creates a framework for interpreting and responding to events.'[29]

The students in my research set themselves goals to improve; daily reflection on small, positive achievements did seem to facilitate progress, both from their own perception and that of peers and staff.

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[27] Dweck, C.S. (2006). *Mindset: The new psychology of success,* New York: Random House

[28] Waugh, R..F. Cavanagh, R.F. and Dellar, G.B. (2003) *Aligning secondary school classroom culture and pedagogy with attitudinal and achievement outcomes* Paper presented at the 2003 Annual Conference of the Australian Association for Research in Education: Auckland

[29] Dweck, C.S. and Leggett, E.L. (1988) 'A Social-Cognitive Approach to Motivation and Personality' *Psychological Review* Vol. 95, No. 2, 256-273

Will providing learners with a range of tools they can use in new situations help them transfer skills successfully?

Damien Ward

St. Paul's Catholic School

Issue

The learners selected for this research project were a typical mix of our current Year 9, divided into two random groups; one formed a control group (four girls and three boys, group A) and the other an intervention group (six boys and one girl, group B). I chose to work with Year 9 students as they are a key year group who are about to embark on a new GSCE curriculum in which more emphasis will be placed on transferring analytical skills in controlled assessments. Although they are normally keen learners, when they are presented with different tasks in the form of assessments they often employ minor work avoidance tactics and ask endless questions rather than thinking through the problem and evaluating the scenario independently.

Context

St. Paul's Catholic School is committed to helping learners become fully prepared as they get ready to take their place in the adult world confidently. The school is a larger than average school with specialist science and languages status as well as being a training school.

Taking all of this into consideration I aimed to provide pupils with an analytical toolbox to break down tasks to help them become more independent in tackling new scenarios.

Research question

It is widely accepted in recent literature and acknowledged in the National Curriculum that developing real life skills and promoting life-long learning should be a major focus within modern school systems. Teaching these skills in isolation, for example as part of a personal and social education programme, is relatively ineffective. Students must be given regular opportunities to develop effective learning techniques in their normal lessons.[30]

It has been suggested that one factor in the possible success or failure of any human endeavour is that precious source of energy known as self esteem**.**[31] Developing confidence in learners is an essential part of any purposeful, effective classroom. The problem here is that to develop confident, independent learners there must be some element of failure: through tackling tasks on their own, learners will inevitably fail on occasion and become frustrated. It is essential, therefore, that pupils are fully equipped to deal with this. Learners who are mastery orientated (want to become skilful in a certain task or topic) are curious, want to learn and have developed a resilience to cope with failure and frustration.

The pupils selected for this research project were curious and wanted to learn but did not cope with new situations well. Claxton writes:

> 'We can't just assume that something learned in one context, for one purpose, will automatically come to mind whenever and wherever it might subsequently be useful. If educators want useful things to become disembodied in students' minds from their contexts of acquisition, so they will be called up and activated by a wider range of situations in the future, they have to work at it'.[32]

[30] Hughes, M. (2003) *Closing the Learning Gap*, Bodmin: MPG Books Ltd wall
[31] Fisher, R. 2001, *Teaching Children to Learn,* Cheltenham: Nelson Thornes Ltd
[32] Claxton, G. (2008), *What's the Point of School*, Oxford: Oneworld Publications

When looking at preparing learners for new situations Fisher[33] suggests a number of steps**:**

1. Transfer of skill requires some of the processes or knowledge to be identical between the new problem and the problem that has been solved.
2. Learners need to be made aware of similarities in the skills involved.
3. Ideally the second problem should be simpler than the first for problem solving to be reinforced.

One of the main issues with teaching for transfer is the pressure of the National Curriculum[34] which may not allow the time needed for effective transfer to occur. This highlights the need for a more efficient method of helping students to learn to transfer skills.

My project

Initially both groups A and B worked on a practical investigation looking at rates of reaction of sodium thiosulphate and hydrochloric acid. From this they had to analyse their findings and identify patterns and anomalies, make predictions and apply scientific principles. Although the students had demonstrated efficient capabilities in these areas they struggled to apply them to new scenarios independently. Typically they asked questions for reassurance, wasted time walking around the room or, in some cases, gave up as they perceived the task as too difficult.

The year group was then involved in an extended enquiry project which lasted five weeks. The purpose of this was to allow learners to investigate a question in a group. Having used a number of these enquiry projects in the past I have concluded that they are excellent at developing confident collaborators who are task-orientated. I felt the challenge was to use these projects to help transfer thinking skills and routines.

For the intervention group I planned a number of short activities aimed at firstly engaging them, then getting them to analyse a number of situations. One activity involved a picture of the Simpsons. For this I asked pupils to come up with a title for the picture, explain what was going on, devise a future story line and look for problems in the picture. Once they did this we looked at how they had done it and likened it to analysing a graph. We were then able to create a series of rules or steps that could be applied to any graph to help 'tell its story'. We also used similar strategies to look at practical investigations, writing prolonged answers in science and adapting plans.

Learners were given questionnaires to complete before the initial assessment and after the final assessment. I also carried out a number of observations during the assessments. To help limit the obvious pitfall of being subjective, I used an observation schedule along with a specific checklist for each observation.[35] Such structured approaches to observation can enhance the possibilities for teacher researchers to make relatively straightforward and defensible comparisons across data sets constructed from different lessons or even different classes altogether.[36]

My findings

There was no overall improvement in learner attainment. Some learners in both groups showed a marginal increase in attainment but nothing of significant value. However, as the

[33] Fisher, R. 1995, *Teaching Children to Think*, Cheltenham: Stanley Thornes Ltd
[34] Glover, D. and Law, S. (2002), *Improving Learning,* Buckingham: OUP
[35] Bell, J (2007), *Doing Your Own Research*, Glasgow: Bell & Bain Ltd
[36] Lankshear, C. and Knobel, M. (2004), *Teacher Research from Design to Implementation*, Berkshire: OUP,

overall focus of this research project was not looking at pupil attainment this was not too disheartening. What was more encouraging was that there was a marked decrease in the number of questions asked by group B (Figure 1).

Figure 1: Average number of questions asked by learners during the assessment. The control group showed a small reduction, 0.67 on average. However the intervention group showed a much larger reduction, 2.67 on average.

This would indicate that learners were more confident in applying their skills in the new scenario. Pupils did not employ any time-wasting tactics nor appear to show any of the previous signs of being unable to transfer their knowledge.

The questionnaires also provided some interesting evidence to reinforce this. Question 6 asked pupils: 'Do you think back to previous lessons when you are stuck?' with possible answers: never, sometimes, once a lesson or more than once a lesson. When comparing learners' answers before and after there was a significant increase in scores in group B (Figure 2). This would seem to confirm the idea that learners were able to employ the transfer tools successfully. Another reason for the reduction in questions asked could be an increase in confidence.

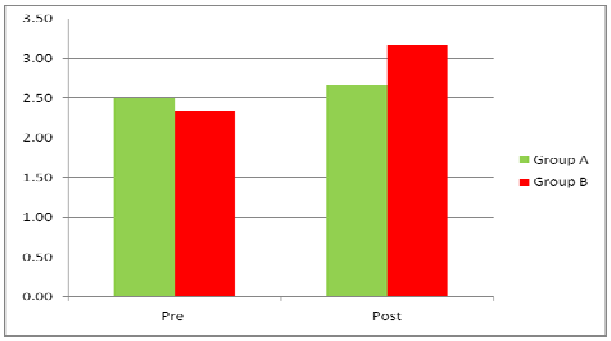

Figure 2: Average score on Question 6 of the questionnaire. The scores of learners in group B increased to an average of 3.17 out of a maximum of 4 points.

Question 3 in the questionnaire asked learners to describe how they felt when faced with new scenarios. Learners were able to select responses from a range of given words. Positive responses scored one point and negative responses scored minus one point. Figure 3 shows that learners in group B improved significantly in their feelings towards new scenarios.

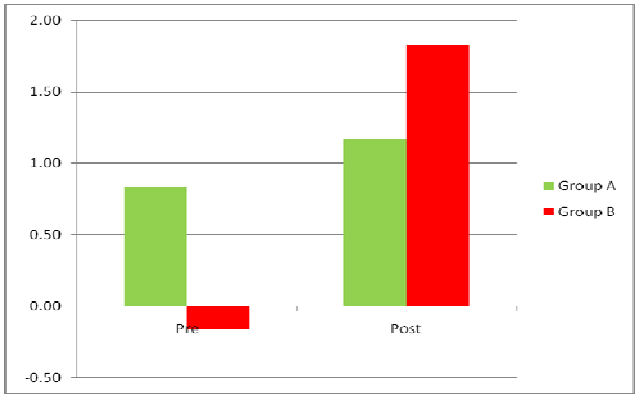

Figure 3: Average score on Question 3 of the questionnaire. The scores of learners in group B increased by an average of 2 points.

Lessons learned

Transfer is something which, if done successfully, can help increase pupils' confidence and motivation. On the other hand, if learners struggle with transfer then it can potentially lead to frustration and unfulfilled objectives. Investing time to help develop ways of coping with transfer could ultimately lead to a more effective learning environment. It should not be underestimated and taken for granted or sacrificed because of curriculum pressures.

Personal reflections

Transfer is a large part of being a successful learner. The ability to think logically, break down tasks and apply previous knowledge when facing new situations is the cornerstone of an effective independent learner. Providing opportunities for pupils to be able to transfer their skills is something I regularly do in lessons. The frustrations of seeing pupils not being able to carry out well-rehearsed skills called for a re-think in the approach I took to these tasks. Having assessed the approach taken here I think there are two main learning points. Firstly, I can feel more confident when teaching pupils to transfer skills by helping them to develop a range of transfer tools to use when approaching new tasks. This should also increase their confidence. Secondly, although the development of a range of transfer tools has not shown an immediate increase in attainment, what it should allow me to do in the future is to spend more time in the classroom developing scientific knowledge and understanding.

Can the provision of net books remove barriers to learning for economically disadvantaged students?

Liz Boote

Stantonbury Campus

Issue
The study was prompted by the underachievement of a vulnerable group of students. It explored if the use of net books (small, lightweight laptops) at home could remove barriers to learning for economically disadvantaged students.

Context
Stantonbury Campus is a mixed comprehensive school for 2500 students. Students who claim free school meals (FSM) are nationally one of the most underachieving groups in our school population.[37] Internal research in 2009 indentified 17% of our students claiming free school meals (as well as other students who were economically disadvantaged). In the FSM group 17% gained 5 A* to C GCSE grades including English and mathematics whilst for those students not claiming free school meals 41% reached this measure. Analysis of the contextual value-added showed no significant difference between these two groups - the school moved all the students forward at the same rate, with prior disadvantage therefore not being overcome. The barriers to learning we identified as being associated with FSM and poverty included lack of everyday equipment; less access to the sole use of a computer; being less able to afford printer ink; and less access to the internet and mobile technology devices. In addition national research[38] for this group identified characteristics such as lack of resilience and less tolerance of passive approaches to learning, which prevented students from building their learning power.

Research question
Recent government policy provided funding for the provision of home access to computers for FSM students as one way of narrowing the gap in attainment. Research also suggested that schools could make a practical difference by 'providing computers to disadvantaged pupils to extend home learning'.[39] However, BECTA research found that the 'non-use of technologies is not explained by socio-economic and demographic factors'.[40] When a change of government led to removal of the grant, but the inclusion in school funding of a pupil premium for the most disadvantaged, we were interested in whether access to an individual net book at home would have a significant enough impact on attitudes, engagement and attainment to be a good use of funding to narrow the gap.

I was particularly interested in whether the impact of individual access would be the same whatever the background and culture of the student. A recent BECTA study on harnessing technology[41] used fourteen case studies to explore how family context and learners' technology-related behaviours shape their use of technology. However, the study was carried out across school phases, conducted in a relatively prosperous area and, as well, had a poor response from families with low economic status.

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[37] DCSF (2002) *Pockets of Poverty: The Challenge for Schools with a Small Proportion of FSM Pupils*. London: DCSF.
[38] Ibid
[39] Ibid
[40] *Harnessing Technology: The Learner and their Context - Mapping Young People's uses of technology in their own contexts*.
http://webarchive.nationalarchives.gov.uk/20101102103654/research.becta.org.uk/index.php?section=rh&catcode=_re_rp_02&rid=17238
[41] Davies, C., Good, J. and Cranmer, S. (2009*) Harnessing technology: The learner and their Context.* University of Oxford/BECTA

In addition, in a pilot study with a group of Year 9 students having access to net books no impact on achievement levels was found, although students' blogs recorded that they felt an important impact was on their home working/learning:

> *"I can type up my work and email my teacher. I have already done more homework this year than I did for the whole of last year."*
> *"I think my computer has made the most difference at home. I don't have my own computer so usually it's a fight to the death between my sister and me."*

My project

My project focused on six FSM students within one Year 9 tutor group, which had been given individual access to net book computers at home and in school for one year. The idea was to find out through in-depth interviews how they used the net book at home and through questionnaires and data analysis how this impacted on their attitude to learning and their progress and attainment. These students were compared with six students of similar abilities from the same class who were not from economically disadvantaged backgrounds. In addition a comparison was made with six FSM students from a different class who did not have access to net books.

The students were surveyed before and after the intervention to see if access had changed their attitudes to study. Attitudes were identified by a questionnaire based on two key learning dispositions, resilience and resourcefulness,[42] which develops to help students to become successful lifelong learners. The individual's family context and technology-related behaviour were identified through in-depth interviews. Students were encouraged in a less structured way to record their experiences via student blogs. Their progress and attainment were tracked by comparing teaching grades with target grades; teacher grades relating to effort, homework completion and behaviour were also compared.

My findings

All students in the survey had some access to a computer other than the net book. The number of computers within the households surveyed varied from one to seven, including PCs and laptops. There was no difference in the numbers according to economic circumstances; what appeared to be significant was the value which families placed on the use of computers for education and for the parents' work. Some students on FSM reported that their parents had purchased laptops specifically to support students doing exam courses or at college. Some students on FSM and some in the comparison group reported that the time they had to individually access computers altered significantly with access to the net books.

All students in the tutor group with net books made slightly better progress from Year 8 to Year 9 against target grades than those without. The most significant increase in progress was in maths (in line with research[43]), followed by science. The additional progress in maths could not be linked to teachers because the comparison group had the same teachers and were in the same sets for maths. Students identified their progress in maths as being related to the increased use of a commercial program, *My Maths,* at home and more use of the program's tutorials to clarify their understanding from previous lessons. There was no difference in the additional progress made between FSM students and others.

Within the study two FSM and EAL (English as an additional language) students reported that the access to a net book at home had made significant impact on their acquisition of language. They reported the use of the thesaurus, synonyms and use of the grammar

[42] Claxton, G., Powell, G and Chambers, M. *Building 101 Ways to Learning Power* Britol: TLO Ltd
[43] Penuel W, et al. (2002) *Using Technology to Enhance Connections between Home and School*, CA: Sri International

correction facility to be particularly useful. They had also used it to maintain family and friendship ties and communicated in their mother language and English for this purpose.

All students interviewed reported that it had improved the organisation and completion of homework and this was confirmed by their homework grades. In the net book group seven students showed deterioration in homework grades between Year 7 and Year 9 compared with fifteen in the non-net book group. Students also reported using the email to send teachers work, resulting in less work being lost and more deadlines being met. Some used email to share ideas with other students.

Students reported the most frequent use of computer was for research tasks. The FSM and EAL students still used books from the library, but others had become dependent on the computer for research. Questionnaires showed that all students in the net book group became less resourceful, with the control group more frequently using the resources around them: books, people, the internet and activities. During interviews students reported that having the net book had not altered their reading of fiction and this was confirmed by there being no change in the pattern of borrowing fiction books from the school library.

All students used a range of programs for presenting work and all identified that this was improving their skills. They were only using programs introduced to them in ICT lessons and there was little experimentation; for example, very few students in the class had used the camera function on the net book. While students reported that it had improved their ICT skills, in fact no difference was found between the two tutor groups.

From responses in the questionnaires the group with the net books appeared to be less resilient in their learning attitudes.

Most students reported that there were rules at home connected with computer use. These related to completion of chores before use of the computer for homework and then for social use. Most had a maximum length of time for use and an identified time at night when computer use should stop. Research showed that for FSM students from white working class backgrounds there was less parent interaction, and fewer rules, around the computer although parents did sometimes ask the students to stop using the computer. All students had exercised their own regulation of the computer but there was more awareness of the need to do this in the net book group.

All students interviewed had used social network sites. FSM students with the net books reported more regulation of their use of social network groups and the time they spent on these. In the non-FSM group interviewed two students commented that they felt they were addicted to social networking. The heaviest use of computers for gaming was recorded in an interview within the non-net book group.

Within the net book group the FSM students reported that having the net book had changed their career choice. All had used the net book to research careers. All except one had high aspirations. The non-FSM students interviewed were vague and had half-formed ideas about careers.

When asked if they would buy a net book if the school was not providing one, most students felt it would help as it would give them exclusive access to a computer or back-up if one of the family computers went down. Within the group interviewed all the FSM students mentioned that cost might prevent this and all but one would borrow a net book if a loan system were set up. In the non-FSM group students' responses about purchase were more varied, ranging from 'no' to 'maybe' to one not being able to afford it. Only one of the students in this group felt that they would borrow a net book from the school.

Lessons learned
While the take-up free school meals gives a measure of disadvantage, it will not necessarily identify those students who will benefit most from access to individual technology. To use the provision of individual technology to narrow educational achievement gaps a school must have detailed knowledge of the home circumstances of students and, in particular, parental attitudes to the use of computers. To get the best value for money the resource allocation should be targeted and part of a holistic intervention to meet need. Some families need close work with parents to establish the value of an individual computer as a study tool. In terms of impact in subjects the greatest impact was shown to be in maths, particularly when linked to commercial software enabling effective independent study. As students have more access to computers they become dependent on these as a source of research material and may abandon reference books. Schools need to work to counteract this. For FSM students who are also acquiring English at a technical level a net book is an asset.

Personal reflections
The study did not allow time for in-depth interviews with parents or detailed direct interventions into students' study habits at home. It would have been interesting to use these approaches to find out about impact. I was also concerned that the sample was very small and therefore unrepresentative.

Following the initial findings we tried two highly individualised interventions with two FSM students, where there was detailed knowledge of home circumstances. A gifted and talented student who received FSM who was underachieving in English was given a net book and improved his English grades by two levels. Another FSM student who was acting as a carer to younger siblings was given access to a net book in school (the student feared the equipment would be sold if taken home). This action was coordinated with Social Services who arranged after-school care of the siblings. Having the net book enabled the student to complete coursework and homework, resulting in a significant improvement in grades, and the student's career aspirations were raised.

We have already made some net books available for overnight loan and they are already being heavily used by post-16 students. We will now ask pastoral teams to identify which students on FSM could particularly benefit, especially in Key Stage 4, and encourage them to borrow the machines.

Generally schools lag behind their students in the use of digital technology and our knowledge of how it impacts on learning. We will need to continue to research how we can 'draw on the experience of digital born learners.' [44]

[44] Sharples, M. et al (2009) *New Modes of Technology Enhanced Learning: Opportunities and Challenges*. BECTA

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