



LEARNING POWER AND AUTHENTIC ENQUIRY AT TESTBRIDGE PRIMARY SCHOOL

REPORT OF A RESEARCH AND DEVELOPMENT PROJECT
UNDERTAKEN BY TESTBRIDGE PRIMARY SCHOOL BETWEEN DECEMBER 2014 AND JULY
2015 INVESTIGATING THE IMPACT OF AUTHENTIC ENQUIRY INTERVENTIONS
ON THE LEARNING POWER OF PUPILS IN YEARS 2-6.

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1 INTRODUCTION

This is the report of a Research and Development Project undertaken by Testbridge Primary School with the support of the Learning Emergence Network between December 2014 and July 2015. Its purpose is to present and discuss the project's research findings in order to support the School's self-evaluation and strategic planning for continuous improvement.

1.1 School Context

Testbridge has twice been judged by OFSTED to be an 'Outstanding' school, in May 2011 for its 'Overall Effectiveness' and most recently in July 2014, when it was judged to be outstanding in all categories. It is a larger than average primary school, with two classes per year group except in Year 6 (2014-15) which had only one class. The proportions of pupils with low SES, from ethnic minorities and with special educational needs, including those attracting Pupil Premium funding, are below the national average.

The School has been working with principles and pedagogies associated with 'Learning Power' since 2008, including an established iconography of key constructs. A strategic renewal of this approach was launched for the academic year 2014-15, to coincide with attaining Teaching School status. The School's leadership were keen to re-energise the ideas in practice with staff already familiar with them, fully involve those who had arrived since the original launch in 2008 and find new ways of embedding them in the learning culture. Staff professional development from September 2014 was focussed on concepts such as Carol Dweck's 'growth Mindset' (2000) and the iconography of Deakin Crick's seven dimensions of learning power (2004) already familiar in the school, based on the Effective Lifelong Learning Inventory (ELLI). Parents and carers were involved in 'Helping your child to become a successful learner', being introduced to these and ideas such as 'The Pit' to encourage resilient attitudes, following a presentation by Professor Barry Hymer in October 2014.

In line with the opportunities and expectations of being a Teaching School, a research dimension was seen as essential: to add rigour and built-in evaluation to the school's strategic intent and involve staff actively in their own professional development: using their own practice as a 'test-bed' for professional learning and collective improvement. The Learning Emergence Network was engaged in the summer of 2014 to co-design and facilitate the project, starting with a whole staff training day on 5th December 2014.

1.2 Learning Emergence and the Crick Learning for Resilient Agency (CLARA) profile

It is characteristic of the work of Learning Emergence that the designed interventions and assessments work reciprocally both to stimulate and to measure change. Whilst establishing a baseline in a constantly evolving learning environment is a matter for social science, not pure science research, and whilst multiple factors may be in play to explain relationships between pre- and post-intervention data, this project's mixed-methods design employs qualitative and narrative data to illuminate quantitative findings, reflecting the participants' understanding of what may have changed, and why. So, whilst it can rarely be claimed that 'this intervention' caused 'that improvement', it can be stated that 'this effect' was observed after 'that intervention' and that it is the view of a representative sample of participants that 'these factors' were significant in the change process. Significant research into the accumulated data generated by the ELLI survey tool from 2000 to 2013 led to the development of a more robust and parsimonious instrument for measuring learning power: the Crick Learning for Resilient Agency profile (CLARA), published under a Creative Commons (non-commercial, no derivatives) license (Deakin Crick, R. et al 2015). In research and development projects, the quantitative data generated by CLARA is subjected to expert analysis, to determine where statistically significant relationships exist between identified variables, supporting – or confounding – hypotheses about effects and their possible causes. (see Appendix i and <http://clara.learningemergence.com/assessing-my-learning-power/>)

2 METHODOLOGY

2.1 Purpose and design

As part of the overall aim of *improving on outstanding*, the principle purpose of the project was to deepen pupils' understanding of learning power and thereby accelerate their progress. Its secondary purpose was to provide research evidence to enable a robust evaluation of any difference made and inform strategic planning for continuous school improvement.

The project was designed to achieve these purposes, firstly, by enhancing teachers' understanding of learning power and enabling them further to develop their teaching and learning in support of it, particularly through authentic enquiry methods; secondly by analysis and evaluation of data captured through (i) research-valid measurement of pupils' learning power before and after these interventions and (ii) qualitative feedback from representative samples of pupils and teachers.

2.2 Interventions and Learning Power Self-assessments

The staff training in December 2015 involved all the staff connected with the classroom, who were introduced to CLARA and Authentic Enquiry in a participative and experiential workshop that included first-hand use of CLARA and interpretation of its feedback. Opportunities were given to work collaboratively to design learning interventions to strengthen learning power. It was followed up by a detailed project planning session between the Learning Emergence Consultant and the School's leadership, in which the nature, scope and timing of the interventions and assessment were determined. All year groups from Year 2 to Year 6 were to be involved, in all around 240 children. The first application of the CLARA survey tool took place in February and March 2015 and the second in late June, early July. Between these dates, teachers of all the Year groups involved continued using, but re-emphasised, the dimensions of Learning Power, using the established iconography when setting and reviewing learning goals with pupils and, periodically involving them in Authentic Enquiry projects specific to each Year group (see <http://learningemergence.net/about/authentic-enquiry>). One, in June 2015, used the architecture of sacred buildings, as an overall 'design hood', spanning across the entire cohort.

2.3 Quantitative Data Collection and Analysis

The data generated automatically, by administration of the CLARA survey to pupils, both before and after the intervention period, provided a research-valid measure of how effective the pupils reported themselves to be, at each point in time, in manifesting the eight dimensions of Learning Power:

- **Mindful Agency:** being aware of my thoughts, feelings and actions as a learner and able to use that awareness to take responsibility, to plan and manage learning processes; the opposite is being 'robotic'
- **Hope and Optimism:** a sense of myself as someone who learns and changes over time; the opposite is being 'stuck and static'
- **Sense-making:** making meaning by making connections so that learning 'matters to me'; the opposite is simply 'accumulating data'
- **Creativity:** risk-taking, playfulness, using my imagination and intuition in my learning; the opposite is being 'rule-bound'
- **Curiosity:** the desire to 'get beneath the surface', check things out find out more about them, ask 'Why?'; the opposite is being 'passive'

- **Collaboration:** learning with others and also able to learn if they're not there; the opposite is either being 'isolated' or 'over-dependent'
- **Belonging:** knowing there is someone to turn to because I am part of a supportive learning community; the opposite is feeling 'alone'
- **Orientation to learning:** being open to new ideas and challenge and having the inner strength to cope with it; the opposite is *either* being too 'tough' and rigidly persistent to learn well, *or* too 'fragile and dependent' to go on learning when things get difficult.

The data was sorted by whole cohort, by Year Group, by class and by sub-groups identified according to SES, ability, ethnicity and gender. Expert analysis by means of SPSS enabled the mean scores of the whole cohort and each of these sub-samples, in each of the eight dimensions of learning power, pre- and post-intervention, to be compared and examined for patterns and shifts which could be assessed as necessary for their statistical significance, as follows:

- Quantitative analysis of raw CLARA data to characterise the sample;
- Comparative analysis of CLARA data using paired T-tests and Analyses of Variance for:
 - Comparisons between the different sub-samples at outset
 - Pre- and post- intervention comparisons for the whole cohort and each sub-sample
 - Variances of pre- and post- intervention comparisons between the different sub-samples

The findings are reported in Section 3.

2.4 Qualitative Data Collection and Analysis

The Learning Emergence Consultant visited the School on July 14th 2015 and conducted semi-structured interviews with the teachers and focus groups with a small but representative sample of pupils in two of the Year groups involved – Years 4 and 5 – and with a leadership group comprising the Headteacher, Deputy Headteacher and the three Phase Leaders with responsibility for curriculum design, delivery and assessment throughout the School.

A further visit on September 14th gave an opportunity for some further observations to be elicited from the Headteacher and Deputy Headteacher in reflection on an early draft of this report.

The qualitative data was analysed in its own right and in relation to the quantitative data analysis, using thematic analysis, analysis of non-participant observation and narrative description.

3 RESEARCH FINDINGS

The following sections summarise key findings from the quantitative and qualitative data. Generally, with quantitative comparisons, this report focuses on those achieving statistical significance, or in other words unlikely to be accounted for by mere chance. For a full report of the quantitative data analysis please see Appendix ii and for a transcript of feedback from the interviews and focus groups, please see Appendix iii.

3.1 Key Quantitative Findings: Patterns of Learning Power at the Outset

3.1.1 The Whole Cohort at Outset

With the entire cohort of 240 pupils across all the Year groups, the highest reported mean score of all the eight Learning Power Dimensions, at the outset of the project, was in *Belonging*, at over 80%. This was followed by *Hope & Optimism*, at around 75% and *Collaboration*, at around 70%. *Sense-making*, *Curiosity* and *Creativity*, three of the four 'active' dimensions, were reported with mean scores of between 64% and 67% with the fourth, *Mindful Agency*, coming in seventh at 61%. The pupils' mean score on the *Orientation to Learning Scale*, at 54%, lies quite close to mid-way between *Fragile Dependence* and *Rigid Persistence* and can be considered to fall within the zone of 'Open Readiness' for learning.

3.1.2 Individual Classes at Outset

In comparison with the other classes, IJ08 (in Year 4) and QR14 (Year 6) reported themselves at the outset of the project to be significantly lower, and MN11 (in Year 5) significantly higher, in *Creativity*.

On the *Orientation to Learning* scale, both Year 2 classes (AB05 and CD06) and Year 6 (QR14) reported as significantly more *Fragile and Dependent*, while OP12 (in Year 5) reported as significantly more *Persistent* than other classes. All these classes' mean scores still remain in the general zone of 'Open Readiness' for learning.

3.1.3 Year Groups at Outset

In the first CLARA self-assessment, in *Creativity*, Year 5 reported itself to be significantly stronger than other Year Groups and Year 6 significantly weaker. In *Belonging*, both Years 5 and 6 were significantly higher-scoring than the others and Year 2 significantly lower, which follows their length of time at the school. On the *Orientation to Learning* scale, Year 2 reported as significantly more *Fragile and Dependent*, with Year 5 significantly more *Persistent* than the other Year groups.

3.1.4 Identified sub-Groups at Outset (SES, Ability and Gender)

Probably owing to the small sample sizes, there were fewer statistically significant comparisons amongst these groups. However, interestingly, the low SES group (eligible for Free School Meals - FSM) reported as significantly more *Curious* than their fellow pupils at the outset of the project.

Looking at those identified (by teacher assessment) as having high, medium and low ability, the differences between them were significant in *Sense-making* and *Curiosity*, where both the low and high ability groups reported themselves as significantly higher than the medium ability group, and on the *Orientation to Learning* scale, where the low ability group were significantly more *fragile and dependent* than the medium and high ability groups and the high ability group were significantly more *persistent* than the others.

In terms of gender, at the outset of the project, boys reported as significantly stronger than girls in *Curiosity*, while girls reported as significantly higher in *Collaboration*.

3.2 Key Quantitative Findings: Patterns of Learning Power Post-intervention

3.2.1 The Whole Cohort Post-intervention

The pattern of Learning Power across the school remained very similar to that reported at the outset. *Belonging* was still highest and followed closely by *Hope and Optimism* and *Collaboration*, all in the 'seventies' by per cent. *Curiosity*, *Creativity* and *Sense-making* were still next, in the 'middle sixties', though *Sense-making* had fallen to third amongst this group. *Mindful Agency* was still back in seventh place, unchanged at 61% (not weak, but still less strong than the others) and the mean score of the whole school on the *Orientation to Learning* scale shifted significantly (from nearly 54% to 50%) away from *Fragility* towards *Persistence*.

3.2.2 Individual Classes' Learning Power Post-intervention

Interestingly, there were many more significant differences between individual classes following the intervention than at the outset of the project. In *Mindful Agency*, IJ08 (in Y4), MN11 and OP12 (in Y5) were now reporting as significantly stronger, and KL10 (in Y4) significantly weaker, than other classes. In *Creativity*, MN11 (in Y5) reported a significantly higher mean score and AB05 (in Y2), KL10 (in Y4) and QR14 (Y6) a significantly lower one than the other classes. In *Curiosity*, EF07 (in Y3), MN11 and OP12 (in Y5) reported as significantly stronger and KL10 (in Y4) and QR14 (Y6) significantly weaker than the others. In *Belonging*, MB 11 and OP12 (in Y5) reported as significantly higher and GH08 (in Y3) as significantly lower than the other classes.

On the *Orientation to Learning* scale, AB05 and CD06 (in Y2) and KL10 (in Y4) were now reporting as significantly more *Fragile and Dependent* and MN11 and OP12 (both in Y5) significantly more *Persistent* than the others.

Three classes appear to stand out in these comparisons: MN11 (in Y5) was now reporting as significantly stronger than other classes in *five* of the eight Learning Power dimensions (taking *Persistence* as stronger than *Fragility*, though no reports were at either extreme on this scale) and OP12, the other Y5 class, was significantly stronger in *four* dimensions, while KL10 (in Y4) was reporting as significantly weaker than the other classes in *four* dimensions.

3.2.3 Individual Classes: Changes from Pre- to Post-Intervention

Year 2 Classes

AB05's mean scores decreased in all the dimensions except *Belonging*, but only the decreases in *Sense-making* and *Creativity* were to a statistically significant degree.

CD06's scores increased in all eight dimensions, but only the increase in *Mindful Agency* was significant.

Year 3 Classes

EF07's scores were higher in three and lower in five dimensions but only the increase in *Collaboration* was significant.

GH08's scores were higher in one and lower in seven dimensions and the decreases in *Mindful Agency* and *Belonging* were significant.

Year 4 classes

IJ08's scores were higher in seven dimensions and lower (i.e. more *Persistent*) on the *Orientation to Learning Scale*. This latter shift was significant, as was the increase in *Creativity*.

KL10's scores were higher in two dimensions (including *Fragility* on the *Orientation to Learning scale*) and lower in six dimensions. The decreases in *Mindful Agency*, *Creativity* and *Curiosity* were significant.

Year 5 classes

MN11's scores were higher in four, lower in four dimensions (including a shift towards *Persistence* on the *Orientation to Learning scale*). The increases in *Curiosity* and *Persistence* were significant.

OP12's scores were higher in five, lower in three dimensions (including a shift towards *Persistence* on the *Orientation to Learning scale*). Although none of the changes were to a statistically significant degree, the increases in *Sense-making* and *Collaboration* were approaching this level.

Year 6

QR14's scores were higher in one and lower in the other 7 dimensions and the decreases in *Curiosity* and *Belonging* were significant.

3.2.4 Year Groups' Learning Power Post-Intervention Relative to Each Other

In their second CLARA self-assessment, Year 5 pupils reported themselves as significantly stronger than other Year Groups - and Years 3, 4 and 6 significantly weaker - in *Mindful Agency*. Year 5 were also significantly higher-scoring - and Years 2, 4 and 6 significantly lower - in *Creativity*. Year 5 were also significantly higher-scoring - and Years 4 and 6 significantly lower - in *Curiosity*. Year 5 were also significantly higher-scoring and all the other Year groups significantly lower-scoring - in *Belonging*, though all the Year groups' mean scores in this dimension were strong. On the *Orientation to Learning scale*, Year 2, 4 and 6 reported as significantly more *Fragile and Dependent*, with Year 5 significantly more *Persistent* than the other Year groups.

3.2.5 Year Groups: Changes from Pre- to Post-Intervention

Year 2's second CLARA self-assessment revealed no significant changes from their mean scores at the outset.

Year 3 reported a significant decrease in *Mindful Agency*.

Year 4 reported no significant differences.

Year 5 pupils reported themselves to be significantly stronger in *Mindful Agency* and *Curiosity* than they were at the outset and significantly more *Persistent*.

Year 6 reported significant decreases in their *Curiosity* and sense of *Belonging*.

3.2.6 Learning Power Dimensions: Changes in Year Groups from Pre- to Post-Intervention

Mindful Agency appeared to strengthen a little in Year 2 and significantly in Year 5, following the intervention period.

Sense Making appeared to weaken in Years 3 and 6, but not significantly.

Creativity appeared to weaken a little in Years 2 and 4 and strengthen a little in Years 3 and 5, but in neither case to a significant degree.

Curiosity appeared to decrease a little in Years 3 and 4 and more in Year 6, while strengthening in Year 5.

Hope and Optimism appeared to decrease in Year 3 and increase in Years 4 and 5, though not to a significant degree.

Belonging appeared to weaken in Years 3 and 4 and decreased to a significant degree in Year 6, whilst strengthening a little in Years 2 and 5.

Collaboration appeared to decrease a little in Years 2, 5 and 6 but strengthen more noticeably (though not to a significant degree) in Years 3 and 4.

On the *Orientation to Learning* scale, Years 2, 3, 4 and 6 appeared to become a little more *Persistent* whilst Year 5 did so more noticeably.

3.2.7 Identified sub-Groups: Changes from Pre- to Post-Intervention

SES
The only significant changes between the high and low SES groups from pre- to post-intervention were that the high SES (non-FSM) group became significantly more *Persistent* on the *Orientation to Learning* scale and the low SES (FSM) group reported themselves as significantly less *Curious*.

Gender
The only significant difference between girls' and boys' mean scores in the second CLARA assessment was found in the boys scoring significantly higher than girls in *Curiosity*.

However, some changes from pre- to post-intervention were significant in terms of gender difference: girls reporting significant decreases in *Sense Making* and *Belonging* since the first self-assessment and boys reporting significant increases in *Collaboration* and *Persistence* (on the *Orientation to Learning* scale).

Ability
In their second self-assessment, post-intervention, children identified as having high ability appeared to report a higher score in most of the eight learning power dimensions, except in the dimensions of *collaboration*, where the high ability group reported a similar mean score to the low ability group, and *Orientation to Learning*, where the high ability group reported as more *Persistent* and less *Fragile and Dependent*. The low ability group reported a higher score than the medium ability group in the dimension of *creativity, collaboration* and *orientation to learning*, and a lower score in *curiosity*. These differences were significant in the dimensions of *Mindful Agency, Curiosity, Hope and Optimism, Belonging* and *Orientation to Learning*.

In terms of how much they changed during the period of the intervention, the only significant differences were in the medium ability group's increase in *Belonging* and the high ability group's increase in *Persistence*.

3.3 Qualitative Findings

In the following sections, key themes emerging from the qualitative data are identified and illustrated by selected extracts from the transcribed feedback from staff and pupils.

3.3.1 Staff Feedback: the Nature of the Interventions

It is clear from the accounts of teaching and leadership staff that the pupil-orientated learning interventions were underpinned by a programme of professional development which had commenced well before the outset of this project.

We were already working with the Learning Powers before the intervention started, especially trying to embed the language. We would ask 'Which Learning Power have you used?' after a topic.

(A Phase Leader)

The driving purpose of this professional development activity was to engage teachers in reflective practice, focussing on the processes of learning and personalisation, evaluating their own pedagogy and analysing the effectiveness of different strategies. The leadership team was striving to bring coherence to this improvement drive.

Things we've done – INSET on mind-set, phase-leaders' follow-up, Learning Walks, Lesson Study... all this professional development has led teachers to address the need to analyse, review what worked or didn't work and why. Professional dialogue has become more deep and challenging.

In the staff meeting last September we said 'this is time to pull together – how deep is Learning Power, the Dweck mindset work, the New Curriculum... all together – not just getting better at different bits of the curriculum. It was about all the 'HOWness' of learning!

Learning and pedagogy are fundamental – improving understanding of these things.

We're stripping everything back to learning. We're not judging teaching but investigating learning. We're developing an open culture of sharing our practice and learning from analysing it. Underpinning it is Growth Mindset and Learning Power.

(Members of the Leadership Group)

Although there was some initial resistance to overcome from some quarters...:

There was initial resistance: 'We do Learning Power already. Why again?' Learning Power is never finished!

(A School Leader)

...the professional learning which launched this project appears, for at least some staff, to have helped to deepen understanding of the Learning Power concepts, foreground them and encourage a more pro-active utilisation of them in teaching and learning.

Since the Training Day in December, we have been deepening our understanding of them... going into what each one means... referring to the Learning Powers before tasks, not just when reviewing afterwards... We were becoming more pro-active in using them... introducing them from the start, not just in reflection and review, so the Learning Powers were in the children's minds right from the start. At the start of the year, they would be reacting to questions; now they were more proactive.

(Year 4 Teacher)

A huge poster was created by each child, like a mind-map, with cut-out Learning Power logos that they could choose and stick on to show when and where that Learning Power had been used... The change in my practice, which will continue now, is to develop success criteria (with the children) in advance, so that Learning Power becomes part of their thinking...

(Year 5 Teacher)

Individual conversations were made available in Year 4 for children to have some support to interpret their CLARA profiles, though the Learning Power dimensions were not always approached holistically.

(After the first profiling) we focussed on one Learning Power at a time... We had individual conversations of about 5 minutes on average with each child. They were highly valued both by staff and the children.

(Year 4 Teacher)

It was clear from the accounts of the staff working with both Year 4 and Year 5 that the Authentic Enquiry format enabled the children to find and use abundant opportunities to develop the Learning Power dimensions that they were targeting and to take more responsibility for choosing content and planning their own work and progress:

The children generated their own questions... We created 'wonder walls' of all the questions, to celebrate curiosity...

Some of them struggled with the 'Generating Stories' stage, but were persistent; they didn't give up. They learned about becoming researchers – what it actually means when it was 100% what they wanted to do, with the teacher only supporting, them taking the initiative

They learned a lot about resilience – when to draw a line and change tack... Some needed help with that!

There was a lot of collaboration checking each other's work, making links with each other's work, being 'maggies'

We had done other enquiries, but not on this scale.

(Year 4 Teacher)

In the subsequent enquiries, they used their experience to 'not be overwhelmed and confused', which they had been in the first enquiry.

They loved owning their own work and progress.

They formed pods (small groups) with common interests

...they've got used to working alone and being self-directed. All along they were good at team work. They had to come up with their own questions, their own activity; no partner work.

(Year 5 Teacher)

It seems likely that there was some variability across the staff in how successfully these interventions were managed and delivered as learning experiences for pupils:

Some teachers teach the language OK but not necessarily the deep understanding, experiencing (of Learning Power)...

One teacher (says she is) 'no longer doing it because I am supposed to but because I understand why it's there!

(Members of the Leadership Group)

3.3.2 Staff Feedback: the Value of the Interventions

The staff interviewed all valued the principles underpinning the project and the impact it appeared to have had on the pupils. There was a clear view that it had raised standards and made children more determined, engaged, self-sufficient and aware of their responsibilities as learners.

(Focussing on the Authentic Enquiry project in June) made a huge difference. This brought everything together – the Learning Powers and Authentic Enquiry (skills)

...since then, the standard of work has been incredible, using the (Authentic Enquiry) process. They used what they'd learned, especially from research, for example, generating more useful questions. They were more effective researchers because of what they'd already learned. It made them more aware that they're in control of themselves as learners – using and choosing Learning Powers.

The most important thing for me (about Learning Power) is the way we've become pro-active and not reactive with it and (about Authentic Enquiry) the ownership and control they've had, giving them the drive because they generated the interest. It helped them to get such a high standard of work from it – high resilience.

(Year 4 Teacher)

(The main difference it's made to the children is that) they've got used to working alone and being self-directed. All along they were good at team work. They had to come up with their own questions, their own activity; no partner work. It was really good for them, especially in the upper end (age-range) of the school.

The most important thing for me (about Learning Power and Authentic Enquiry) is that they can say now which Learning Power(s) will help them before they start. Before, it was mainly a reflective process – 'You could have been a better eagle...!' Now, it is: 'What are we going to have to be to succeed.

(Year 5 Teacher)

It's very powerful. You're changing lives, long term: how people think about themselves and the world. How do you capture the 'buzz' about learning? There's been a real change, a re-invigoration of teachers' understanding of learning.

(A School Leader)

3.3.3 Pupil Feedback: the Impact of the Interventions

The **Year 4 children's** reports of their experiences of Learning Power and Authentic Enquiry suggested that they had internalised the constructs to a quite remarkable degree and were able to include the vocabulary in their own authentic language of learning, to describe and account for their impact upon them. They understood how Learning Power can be useful in other contexts as well as at school and seemed to find it easy to cite examples of how they had changed as learners, as a consequence of working with these ideas and in this way.

Sometimes it was hard to remember which Powers we'd used, not because the animals were difficult to remember but because we had been so busy learning.

We use this way of learning all the time.

At home you can use the Learning Powers.

We even use Learning Powers in our free time and at home.

I've changed because of all the learning and activities. I can remember more. I used to get stuck on remembering things. Because it's fun it now flows around my head all the time.

I've got a lot more Collaboration. I've got a lot more Curiosity, which is what I wanted to work on. I'm going to have a go at ...Mindful Agency. I like working as a group and I think I work well in a team.

My Collaboration has changed a lot – from being my weakest to being one of my strongest. I think it was all about the Enquiry, because on my sheet it said 'take every opportunity you can to work with other people'. It was my chosen one. Curiosity and Mindful Agency have risen a lot too. I think it's good because I've got a lot more confident asking people stuff now.

I was good at Belonging but I've got even better. Curiosity was my worst and I've succeeded in improving it, which was my aim. Sense-making has gone up as well. Other people's questions have helped me to be more Curious.

I've improved my collaboration, like H did and I'm very proud that I've improved it because that was my target. Most of the others were already strong. I've been working very hard to achieve. I looked at my first one (profile) and thought I could get better.

(All agreed that the survey had been easy to use.)

My Hope & Optimism has got stronger – it's now full. That was my target.

If you get a job you can use everything.

(Year 4 pupils)

The **Year 5 children** interviewed were also clear about how the Learning Power dimensions had helped their development as learners and their remarks reflected some insight into how responsibilities can shift between the teacher and themselves.

We get success criteria which help us to decide what Learning Powers to use. In Authentic Enquiries we set our own.

It's helpful.

It is also quite difficult to decide which Learning Power to get better at because we're not always sure whether we're strong or weak at a Learning Power.

Sometimes when we do an activity we get to mark our own work, with help from the teacher. Learning Powers help us to learn from mistakes and do better next time.

Before, in Early Years, we didn't know what they meant.

This year we have decided which Learning Power to use.

A Learning Power for the day.

One week we all focussed on Elephant (Collaboration) because we weren't working together very well.

We would sometimes have the most helpful Learning Powers in our success criteria.

(Year 5 pupils)

The **Year 5 pupils** were also articulate about how the foregrounding of Learning Power in the learning environment and use of the vocabulary in setting success criteria had been a factor in their own improvement.

We would sometimes have the most helpful Learning Powers in our success criteria.

They are on display in our classroom.

They've made quite a difference. They helped my learning a lot, especially the Tortoise this year. I was quite down in my literacy and the Learning Powers helped me to gain strength in my literacy.

I struggle with things. The Learning Powers help to guide me through. It's thinking about what they're useful for and then using that – such as working together.

It helps us to think out of the box and push out of our comfort zone. Like the Pit.

(What is the Pit about?) If you stay on the rim you never learn anything new.

It's about taking risks to learn.

(Year 5 pupils)

They also displayed a high degree of reflective awareness, explaining how they personify the Learning Power constructs to get maximum learning from them. They were easily able to interpret the (second) CLARA Profiles that they had only just received, recognising and explaining changes, not only in their own particular strengths but in their identity as learners, that have already happened and that are available to them on their life paths.

People say teachers are there to help you but I think the Learning Powers are there for you more because they're always there and because a teacher might not understand what you need. You can always turn to the Learning Powers.

They're all around in the school but also in your head.

I think I've become more independent in my learning because I can do stuff for myself now and make the right choices.

People think it's all about age but I think it's when you choose to grow up yourself. I've chosen to do some growing up but until I'm a teenager there'll still be some child to flow free.

My persistence has got even stronger. My Hope & Optimism is a little higher still. All I hope is that I do well.

It helps you to be aware of who you are, what your choices are, where you choose to go and what you do. (All agreed with this.)

From Reception, we've pretty well grown up choosing what to be but using the Learning Powers in my sport I've changed what I want to be.

Changing helps us to see what we want to be after time...

What paths we want to take and what risks and what our limit is.

(Looking at her 2nd profile) Pretty much everything's changed except Hope & Optimism, which was (already) at the top. All the others have increased except Creativity, which decreased (marginally). I think I've got better because the first time I didn't know what my goals were and doing CLARA helped me to see what I was aiming for and what my goals were.

(Year 5 pupils)

The responses of this group of Year 5 children to the final questions suggested that this development in their identities as learners was accompanied by the acquisition of a 'learning philosophy', the articulation of which seems to come completely naturally to them. They attributed significant value to the 'Learning Powers', recalling an assembly in which they were painted as 'heroic' and appear to have assimilated the idea that these things contribute significantly to 'Resilient Agency', without, presumably, having read the academic literature in which precisely this idea is proposed.

(What is the most important thing about Learning Powers and Authentic Enquiry, for you?)

Using all of them to do certain things and being ready to choose another one. Not to go with what you want, but go with what you have.

The Learning Powers, basically. They are more like teachers. They're all there for you. Each one has its own personality and you can take that Learning Power and put it into you and use it in your learning. In assembly, Learning Powers are 'heroes' because they can save our day. If we didn't know about them we'd just plough straight on and not take those bends of Curiosity and Creativity.

You wouldn't be aware of what's around you.

The Pit – which is part of learning – they help you get out of it.

You have to learn to go down to go up. You can't stay at the top all the time.

You have to try to get out.

Once you come through you find your reward. If you don't make mistakes and if you don't cry and you don't show your emotions you won't be able to be helped and you won't learn.

Sometimes you can't practise something, you just have to do it. Sometimes it helps...

For me, using the correct Learning Powers for the correct things (is the most important thing)... like knowing when to follow instructions and when to break them... using Creativity.

(And what about Authentic Enquiry?) (It helps you to understand that) *when you're an adult, you won't always have instructions to follow, you might have to make your own rules.*

It was helpful going step-by-step

Let the problem come to you instead of searching for the problem and getting there before you're ready and failing.

Best to take your time rather than rush. It's linked to the tortoise and the hare.

(Year 5 pupils)

3.3.4 Additional Qualitative Data: provided by School Leaders in September

The Year 6 group were atypical, with unusually broad range of ability, higher than normal percentage of low SES children, a third having arrived at the school since Reception, significant social tensions and noticeable disengagement after National Testing, when the whole school Authentic Enquiry week was running.

On later consideration, it seems clear that teachers would have benefited from significantly more time, and space in the curriculum, to design and manage the Authentic Enquiry interventions to optimal effect.

4 DISCUSSION OF FINDINGS

4.1 Discussion of Quantitative Findings

If we wish to conclude what was the clearest overall effect of the Authentic Enquiry intervention it would be that it helped the children to become more persistent and less fragile and dependent, as was reported in section 3.2.1. However, we also observed a great deal of variation between year groups and between classes within the same year groups. It would be fruitful for project leaders at the School to triangulate the learning power characteristics and changes of each class with the interventions they experienced and their respective teachers' practice and reflect together on how the practice may have fostered or constrained the development of different dimensions of learning power.

It is also important to acknowledge that the learning power scores reported at the outset (in the first CLARA self-assessment) may have been relatively high, since the school has been working with learning power for many years and directed a new cycle of professional development towards related principles and practices in September 2014. This is supported by evidence in the qualitative feedback suggesting that some classes experienced Learning Power- related interventions in advance of their first self-assessment, possibly setting a high baseline for comparisons of pre- and post-intervention scores. This could be sufficient to explain why some classes and Year Groups made little gain, post-intervention. Another factor to bear in mind is the evidence (from the qualitative feedback in this project and from previous studies) that some participants tend to 're-calibrate' their answers to the CLARA survey the second time they take it, effectively 'raising the bar' and responding 'less-like-me' to some questions, because they have become more attentive to, or understanding of the questions and/or more aware of the levels of Learning Power to which they aspire.

If the hypothesis is accepted, as it should be, that the school provides an environment that helps children to develop their learning power, it is not surprising to see children reporting higher learning power scores after attending this school for a longer time. The mean scores of this cohort appear to 'peak' at Year 5, which also happens to be the Year Group that makes the most significant gains in their learning power following the interventions. The way Year 6 children reported themselves therefore seems to contradict this hypothesis of 'the-longer-they-stay-the-higher-it-gets'. This might be explained by the particular teaching practice of specific class teachers, or the nature of the group, being a single class, but it may also be worth investigating whether the proximity of Year 6 National Testing and preparation for leaving primary education might have influenced both the teacher's practice and the children's experience, leading to the decrease in some dimensions of their reported learning power. This would be consistent with the findings of previous studies and appears to be supported by the significant decrease in the Y6 score in the 'Belonging' dimension, the one that appears to have increased most significantly as children move up through the school, up to and including Year 5.

We have seen some differentiated effects of the intervention upon children of different gender, SES and academic ability as well. Assuming that the changes observed can mostly be accounted for by the Authentic Enquiry intervention, further investigation into this differentiated effect may help to improve the effectiveness of implementation of such a programme in the future. The differentiated effect includes:

- Children with high SES being able to retain a similar level of learning power but those with low SES reporting a reduced score in the dimensions of *mindful agency*, *sense making*, *curiosity*, *hope and optimism* and *belonging* and only reporting an increased score in *creativity*.
- Boys being able to report higher learning power scores after the intervention in most of the dimensions, however, girls generally reporting a reduced score.

- Children identified as having high ability retaining a similar level of learning power, but children not identified as having either high or low ability reporting a significant drop in the dimension of *belonging* and children identified as having low ability reporting reduced scores in most of the dimensions, but increased scores in *creativity* and *collaboration*. Please see the detailed explanation (in Section 3.2.7) above of which of these differences were found to be statistically significant.

Perhaps the clearest and most interesting differentiation in the amount of positive change observed between the two CLARA self-assessments is between Year 5, which reported significant gains in three dimensions, and the other Year Groups, none of which reported any significant gains, with two reporting significant decreases. This might, of course, reflect something about this particular group of children, or their teachers' practice. If the Authentic Enquiry interventions were designed and administered differently for each Year Group, it should be possible to use this finding to help evaluate different aspects of the design and delivery of the interventions and 'spread' some of the success in Year 5 to other groups in future. However, if the Authentic Enquiries were consistent in design and administration across the School, it may lead to the conclusion that Authentic Enquiry projects, as conceived and administered at Testbridge, are most likely to impact positively on the Learning Power of this (Year 5) age group and that younger pupils would benefit from some adaptations of the methodology in accordance with their earlier stages of development.

4.2 Discussion of Qualitative Findings

4.2.1 Developing Pro-active Agency

One of the first themes to emerge from the qualitative data was that both teachers who were interviewed reported a shift in their practice, which had happened since the staff training in December 2015, towards more pro-active use of Learning Power dimensions, rather than simply reactive reflection on them. The theme is reflected clearly in remarks such as:

At the start of the year, they would be reacting to questions; now they were more proactive. (Y4)

The most important thing for me (about Learning Power) is the way we've become pro-active and not reactive with it (Y4)

The most important thing for me (about Learning Power and Authentic Enquiry) is that they can say now which Learning Power(s) will help them before they start. Before, it was mainly a reflective process. (Y5)

The change in my practice, which will continue now, is to develop success criteria (with the children) in advance, so that Learning Power becomes part of their thinking... and THEN review against them afterwards. (Y5)

The expectation – and presumably the intention – behind these important shifts in practice is that they would help to engender active agency in the children. The way the children themselves talk about the 'Learning Powers' is quite revealing. In the Year 4 Focus Group, this pro-active use of 'the Powers' seems to be developing, but perhaps not yet securely:

I think (they help) in advance if I know what we're going to do.

Sometimes you realise afterwards, or half-way through, you're being a Spider.

Sometimes it was hard to remember which Powers we'd used, not because the animals were difficult to remember but because we had been so busy learning. (Y4 Group)

The impression is that this group were still finding their way with internalising the eight dimensions, being so 'busy learning' that they would still sometimes only catch up on the relevance of the 'Learning Powers' afterwards. Despite this, they showed encouraging appreciation of how useful they could be in other contexts:

We use this way of learning all the time.

At home you can use the Learning Powers.

We even use Learning Powers in our free time and at home. (Y4 Group)

This understanding of Learning Power as a 'life-wide' as well as life-long utility suggests that a sense of the value of active agency is well on the way to being developed in these children, even if their classroom experience sometimes narrows their focus to the 'learning' they are 'busy' with, which may possibly make them more reactive than pro-active. The decision to focus 'on one Learning Power at a time' (their Y4 Teacher) might also have delayed the children's ability to apply the dimensions to learning needs as they arose – giving the impression of the dimensions as another piece of curriculum content to learn rather than helping children to feel already 'equipped' by them. This could have hindered, unintentionally, the achievement of the teacher's admirable intention to foster pro-activity in their Learning Power.

The Year 5 students seemed somewhat clearer about using the 'Learning Powers' to help them in advance, particularly in the Authentic Enquiries, when they assumed more responsibility themselves, setting their own success criteria (which were otherwise set for them):

We get success criteria which help us to decide what Learning Powers to use. In Authentic Enquiries we set our own.

This year we have decided which Learning Power to use.

A Learning Power for the day!

One week we all focussed on Elephant because we weren't working together very well.

We would sometimes have the most helpful Learning Powers in our success criteria. (Y5 Group)

The way they have made 'success criteria' part of their active vocabulary suggests a high degree of internalisation of their teacher's learning language together with a philosophy of responsibility rather than compliance. This is very close to the notion of 'resilient agency', which is what CLARA measures and is designed to stimulate. Whilst attributing quantitative effects to factors identified in qualitative feedback is an uncertain business at best, it is worth noting that it was the Year 5 group whose data reflected by far the the strongest uplift in Learning Power mean scores following the intervention period. This was to a significant degree in the three dimensions of *Mindful Agency*, *Curiosity* and *Persistence*. It may not be a coincidence.

4.2.2 Passion and Commitment of Staff at all Levels

The impression gained by talking to both of the teachers and the leadership group was of genuine commitment to the values of Learning Power and Authentic Enquiry and appreciation of their efficacy in the teaching.

They (individual conversations) were highly valued both by staff and the children.

(the Authentic Enquiry project in June) made a huge difference (Y4 Teacher)

It's an opportunity for them to explore and find out which artist they are! Which is my passion!

It was really good for them, especially in the upper end (age-range) of the school. (Y5 Teacher)

I couldn't teach without them (the Learning Powers) (R/Y1 Teacher)

There was a sense that the culture of the community was being deepened and enriched very deliberately, with the Learning Power dimensions linked explicitly to 'Behaviours for Learning' in the Early Years and the

project's strategic purpose being about 'embedding' and use of Learning Power being 'instinctive, not another bolt-on'. This strategic intent is clearly fuelled by a passion for improving individual lives, not simply for improving the culture and reputation of a school:

This is what excites me, as a strategic leader, not because 'this is what Testbridge is about' but this is what I believe learning is about and generally people have bought into it, understand why it matters. (HT)

It is important to note that this passion is not so much an emotional impulse as a philosophical and intellectual commitment to learning through enquiry and effecting positive change, at a professional and strategic level just as much as at the classroom level. The intended link with school improvement is quite clear.

We're not judging teaching but investigating learning. We're developing an open culture of sharing our practice and learning from analysing it.

It's very powerful. You're changing lives, long term: how people think about themselves and the world. How do you capture the 'buzz' about learning? There's been a real change, a re-invigoration of teachers' understanding of learning. (Leadership Group members)

The passion and commitment, modelled by the School Leaders and reflected in the rest of the staff, are evidently as personal as they are professional; which probably accounts for their power.

4.2.3 Holistic, Enabling Approach

Another aspect of this leadership drive, reflected clearly in the focus group responses, was the emphasis placed on linking everything up and 'pulling it together' at a level of principle, whilst recognising that it is teachers and children who have to get the job done:

... we said 'this is time to pull together – how deep is Learning Power, the Dweck mindset work, the New Curriculum... all together – not just getting better at different bits of the curriculum. It was about all the 'HOWness' of learning!

That's how I've always seen it, but I'm not in the classroom – the wholeness of it... Exciting, but it was also frustrating before. Learning and pedagogy are fundamental – improving understanding of these things. (Leadership Group members)

There is recognition, here, of how work in classrooms, as for the Year 4 children already mentioned, can so easily narrow focus and fragment learning. The pressure on teachers (and children) to cover curriculum content and meet defined progress targets can lead to a programmed, step-by-step, 'must-try-harder' pedagogy with the resulting loss of sight of the bigger picture. The understanding that 'Leadership involves letting go' and the way in which the project was led:

Staff had to take all they were given and make it a whole for themselves (Leadership Group member)

...speaks of empowering and enabling leadership, modelling the more open, self-directed learning mode that is desired for the children.

4.2.4 Authentic Language and Iconography of Learning

One of the most common findings in schools working with Learning Power is that a common language and iconography of learning, woven around the dimensions, is found helpful in promoting learning dialogue and discourse at all levels.

It was no different at Testbridge. The 'huge' mind-map poster in Year 5, with 'stick-on Learning Power logos, 'like a map of the journey', and the 'Which Learning Power would help you with this?' conversations reported in Year 4 are good examples of the teachers' promotion of this. In year 4, we had children referring spontaneously to the 'Learning Power Animals' helping them at different times:

When I get stuck, I think of the tortoise, who won, and I carry on.

Sometimes the teacher puts us together and we work together and that's like an elephant.

Sometimes we see the big picture like the eagle. (Year 4 Focus Group)

The Year 5 group also used the animal iconography quite naturally in a similar way:

They helped my learning a lot, especially the Tortoise this year (Y5).

... and showed an even more sophisticated internalisation of learning power language, by talking about the same and other linked concepts in their own, authentic language of learning:

I think I've become more independent in my learning because I can do stuff for myself now and make the right choices.

It helps us to think out of the box and push out of our comfort zone...

It helps you to be aware of who you are, what your choices are. (Y5 Group).

... suggesting, by these apparently natural, easy formulations in their own words, quite a profound, personal understanding of both the language and the ideas in action, authentically rooted in first-hand experience.

4.2.5 Positive Personal Change

Nowhere was this ability to converse about the concepts better illustrated than when the children in both Years, 4 and 5, interpreted their second spider diagrams, which they had only just received. With the help of the labels on their profile sheets, they appeared completely at ease referring to the dimensions as named in the research literature and guidance material:

Pretty much everything's changed except Hope & Optimism, which was (already) at the top. All the others have increased except Creativity, which decreased. (Y5).

My Persistence has got even stronger. My Hope & Optimism is a little higher still. (Y5).

These were amongst several examples of personal, positive change in learning power reported by pupils in both groups. The Year 4 group went into more detail:

I've changed because of all the learning and activities. I can remember more. I used to get stuck on remembering things. Because it's fun it now flows around my head all the time.

I've got a lot more Collaboration. I've got a lot more Curiosity, which is what I wanted to work on. I'm going to have a go at working on Mindful Agency.

My Collaboration has changed a lot – from being my weakest to being one of my strongest. I think it was all about the Enquiry, because on my sheet it said 'take every opportunity you can to work with other people'. It was my chosen one. Curiosity and Mindful Agency have risen a lot too. I think it's good because I've got a lot more confident asking people stuff now.

I was good at Belonging but I've got even better. Curiosity was my worst and I've succeeded in improving it, which was my aim. Sense-making has gone up as well. Other people's questions have helped me to be more Curious.

I've improved my collaboration, like H did and I'm very proud that I've improved it because that was my target. Most of the others were already strong. I've been working very hard to achieve. I looked at my first one (profile) and thought I could get better. (Y4 Group).

Whatever the findings from the quantitative data for the rest of their Year Group, these particular children are reporting significant, positive changes in their learning power strengths and, interestingly, suggesting in more than one case that this is directly related to their intentional targeting of particular dimensions for improvement. They are right to be proud of that. It is an authentic example of growing resilient agency.

4.2.6 Variability

It is usual for there to be some variability in how Learning Power and Authentic Enquiry interventions are implemented. Members of staff at Testbridge are clearly valued as individuals and, as we have seen from the feedback on the Year 5 Art Week, encouraged to explore and express their own passions and ideas in their teaching as well as to align with principles introduced and articulated by school leaders. There are always different levels of experience, too, both of teaching and of the School's principles and philosophy. A sense of 'ownership' of Testbridge's particular approach to learning and teaching is clearly growing, over time. The Leadership Focus Group showed an expectation and understanding of this growth, the tendency for some to follow 'instruction' less critically, and the variability that comes with all that:

Some teachers teach the language OK but not necessarily the deep understanding, experiencing (of Learning Power).

One teacher (says she is) 'no longer doing it because I am supposed to but because I understand why it's there!

It raises the question of new staff – mentoring, early on – part of induction! LSAs too!

Still some will do it because we tell them. (Leadership Group members)

Previous studies have suggested that the effect of the teacher remains the most powerful factor impacting upon pupil attitudes, dispositions and performance. This is therefore likely to be a significant part of the explanation of the variability in the quantitative data, from class to class and Year to Year.

4.2.7 Pupils' Capacity for Reflection, Responsibility and 'Learning Wisdom'

It was clear from what they said about the eight Learning Power dimensions that the Year 4 pupils grasped their wider usefulness:

If you get a job you can use everything. (Y4)

This appears to have arisen out of natural reflection, beyond the focussed utilisation of the ideas for the immediate tasks in hand, that we also noticed. The Year 5 group showed the same appreciation of how these concepts would always be there to turn to, even saying that they are more helpful in some respects than teachers are:

People say teachers are there to help you but I think the Learning Powers are there for you more because they're always there and because a teacher might not understand what you need. You can always turn to the Learning Powers.

They're all around in the school but also in your head. (Y5)

This capacity for reflection, sometimes repeating wisdom they have received but sometimes apparently finding their own symbolic language to express wisdom gained through first-hand experience, suggests a maturity – and a deep understanding of the nature of learning – beyond their years:

They are more like teachers. They're all there for you. Each one has its own personality and you can take that Learning Power and put it into you and use it in your learning. In assembly, Learning Powers are 'heroes' because they can save our day. If we didn't know about them we'd just plough straight on and not take those bends of Curiosity and Creativity.

You have to learn to go down to go up. You can't stay at the top all the time.

Once you come through you find your reward. If you don't make mistakes and if you don't cry and you don't show your emotions you won't be able to be helped and you won't learn.

Sometimes you can't practise something, you just have to do it.

For me (the most important thing is) using the correct Learning Powers for the correct things ... like knowing when to follow instructions and when to break them. (Y5 Group)

They showed a similar quality of wisdom and sophistication in relation to Authentic Enquiry:

(It helps you to understand that) when you're an adult, you won't always have instructions to follow, you might have to make your own rules.

It was helpful going step-by-step

Let the problem come to you instead of searching for the problem and getting there before you're ready and failing.

Best to take your time rather than rush. It's linked to the tortoise and the hare. (Y5 Group)

This articulation of the need sometimes to be able to adapt and wait, sometimes to take responsibility and write your own rules, with ready references to symbolic meanings embedded in the Learning Power concepts (such as the tortoise and hare story), represents the very heart of what 'resilient agency' is all about: the collection of flexible personal qualities that CLARA measures and is designed to stimulate. These particular children appear to have internalised the whole idea, to a significant degree.

4.2.8 Additional Qualitative Data: provided by School Leaders in September

The unusual demographics and social fabric of the Year 6 Group might help to explain why they appeared weaker throughout (relative to other Year Groups) in *Creativity* and then also, post-intervention, in *Mindful Agency*, *Curiosity* and *Belonging*. The declines in their *Curiosity* and *Belonging* were significant and they were now also one of three Year Groups (together with Y2 and Y4), to have become significantly more *Fragile and Dependent* on the *Orientation to Learning Scale* (than the others). The implication is that, notwithstanding their historic, relative weakness in *Curiosity*, something changed for them in Term 6. In the light of quantitative findings elsewhere, it seems safer to interpret the decline in certain aspects of their Learning Power as having more to do with environmental factors such as the experience of testing and proximity of their leaving date, than with the nature of the interventions, particularly in view of their greater *Fragility* and loss of *Belonging*.

The constraints of limited preparation time and pressure on space in the curriculum are ever-present in schools. It seems possible, however, judging from reflections of the School Leaders on this occasion, that these constraints may have been a significant factor in the finding that clear-cut increases in Learning Power, post-intervention, were relatively limited and unevenly distributed.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 The Learning Power Picture at Testbridge

The three strongest Learning Power dimensions at Testbridge, before, during and after this project, are *Belonging*, *Hope and Optimism* and *Collaboration*. Their mean scores in these dimensions are at the upper end of the range, from our experience of schools generally. This is not surprising. They are all concerned with the learning culture of the school, which is clearly extremely strong. The professional development work on 'Growth Mindset' (virtually synonymous with *Hope and Optimism*), the emphasis on 'Behaviours for Learning' from Reception onwards, the richness of opportunities for collaborative working and the nurturing nature of the community are all, surely, reflected in that outcome.

The corollary of this is that three of the four the 'active' Learning Power dimensions, *Mindful Agency*, *Sense-making* and *Curiosity*, whilst in fairly good shape relative to many schools, are therefore not the strongest aspects of Learning Power at Testbridge. *Sense-making*, in particular, is found in most contexts next to *Hope and Optimism* at the top of the scale. These four dimensions (including *Hope and Optimism*) have been found in previous research (with adolescent learners) to be instrumental in countering underachievement (Ren, K and Deakin Crick, R. 2013). Since it is reasonable to assume a good association between strengths in these active learning dimensions and curricular achievement, the **first recommendation** is to ensure that they enjoy at least as much emphasis, in policy and professional learning, as *Belonging*, *Hope and Optimism* and *Collaboration*.

Moreover, as a **second recommendation**, it is important that ways are found to ensure that (i) children maintain a sense of the dimensions as distinct but connected parts of a coherent whole, and (ii) where attention is directed at length towards one particular dimension, this happens as far as possible because a child (or it may be a group) has identified a personal need (such as from a CLARA profile) and made a conscious decision, with or without the help of a coaching conversation, to target that Learning Power for improvement.

5.2 Impact of Interventions

5.2.1 Reasons for Caution in Interpretation of Results

It is always tempting to look for significant uplifts in Learning Power, from pre- to post-intervention, to 'prove' that the interventions have been effective. There are several reasons why such findings may not be so evident in the data, and particularly at Testbridge. Firstly, the School had been working with Learning Power and using the language of the seven dimensions for over six years before this project began. Professional learning related to the project began in September 2014 and staff started implementing it in their practice, but the first CLARA survey taken by children was not until February 2015. This was likely to lead to the baseline (pre-intervention mean scoring) being significantly higher than it would have been if all interventions commenced after the first surveys; so pre-post differences would almost inevitably be reduced. In fact it could be argued that the more immediate the effect of the interventions, the less visible they will be in the pre-post comparisons. A **third recommendation** is to plan any future research and development projects to establish a baseline established in advance of the interventions, in as far as this is possible.

Next, it became clear, on reflection in September, that the Arts Week Authentic Enquiry in June would have had more impact on pupils' Learning Power if more time and space had been carved out for it. It was, perhaps, inevitable that in a single week of project work, when parents were expected on the Friday as part of the 'assessment event', there would be something of a 'rush to final product', reducing the scope for stepping back, keeping the bigger picture in view, handing over responsibility to children, involving them in reflection and

learning from learning. A **fourth recommendation**, therefore, is to consult early in the year about how and when more time and space might be created for this, in view of its power to enhance the rest of the learning.

Another factor that sometimes obscures an increase in Learning Power is that some children rate themselves as 'lower' in certain dimensions on their second surveys because they have understood the questions better (maybe thanks to the teaching about learning) and/or become acutely aware of the scope for improvement in those dimensions. In other words they 're-calibrate', setting a 'higher bar' and reporting themselves as *lower* despite having stayed the same or got relatively stronger. There is some evidence of this happening at Testbridge. It is only possible to detect the extent of it by talking to pupils about their CLARA profiles and asking them what *they* think explains any changes in them. The **fifth recommendation** is to consider whether it would be worth extending this research by conducting such conversations with a small but representative sample of pupils.

Lastly, by way of caution, the smaller the size of a sample, the less likely it is that comparisons will achieve sufficient difference for it to be called 'statistically significant'. It is therefore quite difficult for individual classes and even whole year groups of less than 100 pupils to show such clear-cut changes in the data. Also, when some sub-samples (such as classes) show increases and others show decreases, the changes may cancel each other out in the analysis of the larger sub-sample and whole cohort. The data at Testbridge does reveal some variability, the possible reasons for which were discussed in the previous section. The quantitative data, particularly in terms of pre-post change, therefore needs to be interpreted with some care.

5.2.2 What Can be Concluded with Confidence then?

The strongest conclusion that can be arrived at with confidence is that the Year 5 group reported the highest levels of Learning Power at the outset and went on to make the most significant positive change. This appears to be supported by the qualitative data, although only one half of the Year Group was represented in it. The quality of reflection, responsibility and resilient agency displayed by the Year 5 Focus Group was completely in keeping with the both the high levels of Learning Power they reported initially and the degree of positive change revealed in their second surveys.

The Learning Power data from Years 2 and 3 in the other dimensions is more difficult to interpret conclusively without corresponding qualitative data; however, it is likely that they were also obscured by variations between classes. It may also be that Authentic Enquiries, particularly constrained within short periods of curriculum time, are more suited to slightly older children. However, it still seems probable that their experience of them this year will contribute to their capacity to benefit from them in years to come.

Apart from Year 5, then, the other two Year Groups whose CLARA data is apparently well explained by the qualitative feedback are Year 4 and Year 6. The unusual social and demographic make-up of Year 6 and the fact that it was, in any case, a single class and therefore smaller sample, together with the particular environmental factors affecting them in their final weeks at Testbridge, seem enough to explain their 'up and down' scores. For Year 4, the stand-out finding is about variability between the two classes, which would have cancelled each other out in their pre-post differences. Whilst it is clear from the Focus Group and teacher interviews that both of these Year 4 classes had very positive experiences of the interventions, it may be that one group's learning was more teacher-led and the other's more self-directed. One might have been more organised, beautifully presented, predictable, the other more imaginative, improvised, haphazard. Whilst both might represent excellent practice, the second is more likely to allow space for Learning Power development, offering more opportunity for genuine dialogue, spontaneous reflection, self-awareness and ownership. The dimensions of *Creativity*, *Sense-making* and *Mindful Agency* in particular respond well to such a learning environment.

A **sixth recommendation**, then, is to *balance* the professional learning directed at deepening understanding of Learning Power with a parallel emphasis on the characteristics of effective pedagogy for developing Learning Power, as found in the ‘Twelve Key Themes’ in Chapter 6 of *Learning to Achieve* (Small, T. 2011: pages 62-63). The overall purpose is to encourage and enable teachers to design and deliver opportunities for pupils to experience genuine ownership of their learning, through decision-making and self-direction, with the teacher as ‘fascinated audience’ and interlocutor. The shift, to be achieved incrementally, is away from teacher-led learning towards more pupil-led learning, involving ‘letting go’, as modelled by Testbridge’s leadership.

Another important conclusion from the pre-post comparative data is that there was a move, fairly consistently across the school, away from *Fragility and Dependence* and towards *Persistence* on the *Orientation to Learning* scale. This is particularly welcome in the light of the conversations at the staff training in December about the need to improve resilience amongst pupils. While the children started and remained within the acceptable range of *Open Readiness* (for Learning), the shift does suggest a strengthening of resilience in their agency.

However, when we focus on the Learning Power of specific ability groups, it appears that those identified as having higher ability gained significantly in their capacity for *Persistence* from working with the notion of ‘The Pit’ and related cognitive strategies. However, those identified with lower ability made much less progress in improving their *Persistence*, though arguably being the group most in need of it. Significantly more *Fragile and Dependent* than the medium and high groups at the outset, they were still significantly more *Fragile and Dependent* than the medium group after the interventions. What emerged from the discussion in September was the possibility that, because these pupils are recognised by staff as fragile they are somehow sheltered from challenge. A **seventh recommendation** is to investigate, if possible on an individual basis, whether the balance between support and challenge is ideal for the development of Resilient Agency in this identified group. Where possible, they should be challenged to improve their Learning Power, given authority to decide which dimension to work on and held to account in ‘contracting’ their self-improvement strategies, supported by mentoring conversations, using their CLARA profiles as a framework for identity building, action and review. In this way, they are being treated the same as other pupils in being required to set and own and meet their own success criteria, without risking self-esteem, with perhaps just the added impetus given by more one-to-one attention than is affordable throughout the school.

5.3 What CLARA can Provide

This project’s purpose was to assist continuous improvement, firstly by deepening understanding of learning power and enabling teachers to develop teaching and learning in support of it; secondly by analysis and evaluation of data, both captured through measurement of learning power before and after interventions and through feedback from pupils and teachers.

Whilst, obviously, time will tell, it seems fair to conclude that this purpose has been achieved, helped by the ‘lens’ that CLARA provides, to examine the development of Learning Power at Testbridge over the best part of a year. Together with conversation and participant observation, it has enabled quite a forensic scrutiny of the quality of learning and teaching, the relationships between them and leadership, and the learning culture at all levels. It has made possible (for this outside observer) the privilege of getting to know a school deeply through relatively brief acquaintance. The findings affirm qualities that have made Testbridge already ‘outstanding’, whilst offering an agenda for building and improving upon on those strengths, in the cause of preparing pupils even better for the life ahead of them. As a **final recommendation**, it is worth considering whether this agenda for improvement would be appropriately supported by an annual CLARA self-assessment for some Year Groups. In this way, the benefit of this intensive piece of research and development could be extended cost-effectively, the ‘Learning Power’ philosophy regularly re-invigorated and a longitudinal picture formed, giving a helpful ‘steer’ and some valuable continuity to the School’s strategic direction in the years ahead.

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