



Leading Learning through
Research and Innovation

Research Thrives:

Developing a devolved research group model to embed a sustainable research culture across differing enquiries in primary settings.

Abstract

This is the overarching report for a project which examines the efficacy of a model which has been designed to enable high quality research enquiries across a number of settings. The key findings across the schools involved were in the following areas: benefits to the school; impact on leadership; impact on pupils; teaching school alliance relationships. The case studies provided in the appendix are examples of two of the pieces of research conducted within enquiry 1.

Joanne Calladine-Evans. MA

teachingschool@strichardsc.com

Our title for the research project is Research Thrives: Developing a devolved research group model to embed a sustainable research culture across differing enquiries in primary settings. The model was developed initially through two teachers at Thrive Teaching School Alliance (TSA) who were studying for a Master's degree in Research Leadership at the University of Sussex. The programme involved the Teaching School Director participating in a steering group for the MA and working with a leader from the university who was acting as a critical friend in establishing a research culture within the school. It seemed possible that this model could be extended through the Teaching School Alliance and beyond into the Rother Education Improvement Partnership (established by the local authority in 2014) in order to generate a sustainable culture of research.

The context of our alliance is of pockets of social and economic deprivation in a coastal challenge area, with nearby small rural primary schools being isolated from wider networks of collaboration and improvement through school-based research.

The key challenge features were:

- A model of collaboration that was emerging and needed to move to embedded.
- Significant disparities in student outcomes at KS2 and KS4.
- Difficulties in recruiting and retaining teachers and leaders.
- Significant levels of parental disengagement from learning for some schools in the area, ranging from Early Years to end of KS4.

The emerging model of research-based school improvement is centered on growing in-school action researchers who then collaborate across the network to share and develop their learning. This model is practitioner-lead, supported by two teacher research leaders, in the construction of the research and its quality assurance by the HEI.

The lead secondary school is building a genuine research culture and has invested significantly in the two research leaders who have now completed an MA in Leading Research. The two leaders have led a research team to train other teachers in carrying out research accurately and ethically, in supporting the development of high quality research in other schools and settings.

The pilot work for the research model was conducted across two primary schools and a secondary school in 2015-16. The secondary school teachers worked with the primary leads in English and Science in the two schools and the research leaders evaluated the results from this collaborative work. The results of this work have already been shared with partners via the Teaching School Newsletter and the Sussex University Conference as well as in the lead school and primary schools involved. We wished to build this model further in a sustainable way.

Rationale

The rationale of the research was based on a number of research papers and publications that pointed to the effectiveness for schools of investing in ongoing training for their staff. In particular the premise of the research was based on the notion of joint practice development as defined by Fielding et al as 'learning new ways of working through mutual engagement that opens up and shares practice with others' (2005). In a soft collaboration like a Teaching School Alliance where several schools in the area belong to Academy chains we believed that a possible way forward was

to as Ainscow et al (2006) pointed out, encourage schools to collaborate because ‘they wish to enhance their resources or funding’. This was certainly the case with the engagement of the two primary academy schools, the funding generated initial interest and the model compensated for a lack of insider capacity to conduct the research at a high level. There was also a strong desire to address some significant aspects as identified below in our original bid.

1. Children. We aspire to see improvement in progress and attainment at key stages 1,2 and 3 by developing informed reflective practice that explores strategies bespoke to each setting.
2. School to school support. We anticipate that the generation of innovative insights into effective strategies that test existing paradigms will lead to new approaches in a context that enables the learning in one school to support improvement in others.
3. Creating a culture of school-based research. Our ambition is to secure a network of school-based researchers, supported by teacher research-leaders, whose cycles of planning/research/review/dissemination become an integral aspect of school improvement across the TSA.
4. Practitioner and HEI relationship. Whereas informal school-based enquiry can generate some insights specific to that context, our aim is to build on our existing relationship with the University of Sussex to formulate findings that are supported by rigorous quality assurance and the capacity of the HEI to support our alliance in developing a channel to a wider research community.

Methodology and Methods

Our proposal was to use the research team to support two enquiries which they would conduct and lead from a position of expert knowledge. Although we have collected and analysed the data from both enquiries, enquiry 1 has been the key vehicle for testing the model. In enquiry 1 we supported a research approach with two primary schools from a local MAT. One (case study 2) embarked on an innovative approach towards intervention across KS1 and 2 and the other (case study 1) wanted to investigate whether computer software improved Mathematics intervention outcomes within a primary setting. We decided to use the lead school’s research leaders to support the research conducted in the schools and evaluate the findings. In case study 1 the design centered around a traditional randomized controlled study (Cohen et al, 2013), while in case study 2 a mixed methodologies approach allowed for ‘the application of quantitative methods to establish patterns while using qualitative methods to explore the interpretations and experiences of participants’ (please see Appendix case study 1 and 2 Enquiry 1).

Additionally, in enquiry 2, we wanted to extend the impact of the Science and English pilot research to at least the core subjects, with a theme around transition, enabling the teacher subject leads in the primary and secondary schools to link up to conduct joint research of up to three foci (ie: curriculum mapping, knowledge building around intervention success). For example, a KS3 Humanities teacher could link with History leads in a feeder primary school; They could conduct a curriculum mapping exercise to look for opportunities to dovetail subject knowledge and concepts, with a view to joint planning and delivery of lessons in KS2 and KS3. This would provide an opportunity to collect evidence on the impact of the project on teacher subject knowledge in both Key Stages, impact on KS3 and curriculum planning while providing continuity of teaching experience

for pupils to smooth transition. Within this innovation vulnerable groups would be closely monitored and evaluated. We anticipated that there would also be intangible benefits to this approach in terms of the development of a research culture across the TSA. This work was supervised through the research team based at the lead school led by the qualified research leaders.

The research formulation and structure was provided by the Research team which consisted of the Research Team Leaders and teachers (some were insider researchers) and senior leaders from across the Teaching School Alliance; who then researched the process that the subject leaders used and experienced, using a variety of research instruments such as survey, interview and case study, in order to identify the impact of the projects on teachers and learners. They collected and evaluated the impact on learners and teachers with a view to sharing and acting on initial findings but also enabling the teachers themselves to fully engage in their immediate project activities without the pressure of evaluating their own activity.

We anticipated that this would remove some of the barriers which occur when practitioners research their own context by supporting them in being able to apply research findings from one context or key stage to another. Their views and learning was collected amongst a range of data.

The Sussex Research Network (University of Sussex) supported the Research Team Leaders through ongoing evaluation as a critical friend and supporting the dissemination of the findings of the Research Team. This has added a further opportunity to filter the research findings and present it both robustly and coherently, in a manner which is academically sound and applicable.

Findings and results

The key findings across the schools involved in both enquiries were in the following areas: benefits to the school; impact on leadership; impact on pupils; Teaching School Alliance relationships.

Benefits to the schools involved.

Without exception all participants agreed that it was beneficial to their schools in the following ways.

Role	Benefit
Headteachers	<ul style="list-style-type: none"> • Authority and validation for the methods and processes they were using in their schools • Fulfilling for staff involved. • Individual teachers being able to share their knowledge and discuss their practice. • Teachers from primary and secondary working together had made the work professionally stimulating for staff. • Outsider evaluation had been very useful and had provided insights. • Having written reports to present to Governors or Trustees. • Development of a research culture in the lead school • Retention of research leaders • Lead school actively pursuing becoming

	a Research School
Research Team Leaders (RTL)	<ul style="list-style-type: none"> • Knowledge from different settings ie KS2 to 3 • Impact on leadership, ie: one RTL has recently received promotion and was using some of the learning from conducting the enquiries to support him in the delivery of his new role. • Professional interest has grown amongst staff, ie: from 7 in 2016 to 11 in 2017 • Presentations in lead school were very professional and all the researcher practitioners found it a very valuable experience. All practitioners have remained in the Research team. • Increased understanding of whole school leadership.
Practitioners	<ul style="list-style-type: none"> • Development of own practice • Insight into a different key stage • Professional enjoyment • Positive propensity to be involved in further research of this nature • Involvement in research without the pressure of writing up the learning. • Belonging to a teacher led team where the hierarchy is based on knowledge and skills as opposed to leadership role. • Engaging staff who are at an early stage in their career.

The table indicates the tangible and intangible benefits to a school of being involved in a model such as this. All of the above were cited by the staff involved and they echo the findings of the University of Bristol School of Education and Maths which noted that “evidence of the power of action research as a mechanism to support teachers continuing professional development. It demonstrates the importance of meetings of a collaborative group for peer support, challenge and enrichment.” (2016). It was hard for staff at all levels to articulate the intangible benefits to the schools involved however, without exception all were keen to continue working with the school to develop the practice of conducting research within their school settings. Despite the time constraints of staff involved it was deemed a worthwhile and valuable exercise, a positive and professionally enhancing activity.

The impact on leadership depended on the role of the participant. The biggest gain appears to be within the Research Team Leaders themselves, although only one of them felt that this was personally significant, though nevertheless acknowledging an increased professional confidence when working from a position of knowledge. The university critical friend noted that over the three years since they had started their MA to become a Research Team Leader their presentation skills and confidence in front of wide ranging audiences from MA students, to Headteachers to University department leaders, had grown significantly. They were described as emerging leaders in their own

school and beyond noting that they had “personal vision of the research work”. They have also displayed the characteristics of resilience and professional accountability in all of the work that they have led throughout the project.

There has been a positive impact on pupils as indicated in the case studies contained in the Appendix. The Headteacher from case study 1 felt that although emerging findings were “tentative” they were “indicative”, and the use of the VLE was worth further exploration. In case study 2 all pupils made progress, in some cases significantly. The Headteacher and the Trust felt that this was justification to extend the model for another year and that within the culture of the school “intervention had been pushed to the forefront” explaining that intervention had been regarded as less important by staff prior to the research. In enquiry 2 practitioners rated the impact on pupils as positive although were reluctant to ‘overstate’ the impact of the work based on such a small-scale piece of research. Research from the Fair Education Alliance however indicates that closing gaps in Maths were “enhanced when schools had a ‘teacher researcher’ focus.

Within the Teaching School Alliance (TSA) itself there are indications that relationships have strengthened and one Headteacher noted that ‘bonds are growing between the schools’ and that it is ‘good to be working with a school which has such standing in the community’. The University leader described the research model as a ‘good way of creating interplay between the different levels with the University and the TSA. The university was interesting in their response that they felt the relationship between the university and lead school operated on two levels, one the dialogue level whereby conversations and relationships developed through the people involved and, two, the university needs to find sources of income and that engagement in this type of project provided a better chance of recruiting to their university programmes this correlates to Ainscow et al (2006) who noted that schools enter into collaborative arrangements because ‘they wish to enhance their resources or funding: they are responding to incentives, such as those which accompany central initiatives;’

Conclusions and recommendations

Pragmatically all participants have recognised that setting up a research community requires considerable preparation. Although we set terms of reference and engagement at the beginning of the project and conducted several meetings with Headteachers, school leaders and participants it would have been even more beneficial to have a planning meeting that involved all participants to better enable them to understand the scope of the whole initiative once all had committed to the project. Further interim meetings for all participants would also have been beneficial although very challenging in terms of time. This would have enabled us to build social capital prior to the research activities commencing and thus enabled smoother flow of the research at some testing points in the academic year.

The university involvement has been a vital part of providing quality assurance and support during the lifetime of the project, although on reflection they have indicated that greater consultation in the research design would have been useful for the Research Team Leaders. This may have tightened the case study research but conversely it may also have impacted adversely on the confidence of the Research Leaders who felt that they were supported by being allowed freedom to develop their research team which they described as ‘collegial and synergistic’.

As a Teaching School Director I have learned that developing relationships through a broad offer such as CPD, research opportunities, bidding for funding for Arts projects all of which enables schools to engage at a level that is useful to them has enabled some relationships to grow in

‘maturity’ as Hargreaves (2014) has pointed out ‘JPD is easier to get off the ground if trust, reciprocity’s twin component of social capital, is already established between people. Reciprocity thrives as long as people can be persuaded to collaborate with one another to improve their professional practice. Trust, however, is a more subtle concept and is established much more slowly.’ What this model has enabled us to do is to begin to develop or extend collaboration and eventually trust at all levels as it simultaneously engages, practitioners, leaders and headteachers.

Our experience clearly indicates the value of securing funding from a reputable organisation with strong systems, to conduct research enquiries that are engaging and skill enhancing for teachers, bring practitioners together across different settings or year groups and enable Headteachers to evaluate aspects of their school improvement strategies. The funding itself provides the opportunity to engage and support time intensive projects. However, the value of the learning, both tangibly and intangibly, is significant for the investment made. Not all aspects of the initial work carried out are sustainable. The initial investment from the Laurel Trust has enabled the research team at the lead school to establish its credibility, expand to over 10% of the staff population and begin the journey towards becoming a research school. As such part of the dissemination plans are to build a relationship with the Chartered College, the NFER and Bishop Luffa school in West Sussex in order to share the learning attained. This will be in addition to the presentation at the University of Sussex Conference, The Laurel Trust Conference and British Education Research Conference in September 2017 the distribution of Newsletters and the Teaching School website, which has been commended by researchers at the Teaching School Council.

Finally, the focus of our project has been collaboration and we would like to express our sincere gratitude to the Laurel Trust for providing the resources and collaborative support to enable the work to be successful.

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Appendix

Enquiry 1 Case Study 1.

Can computer based homework intervention improve Mathematics in the primary setting?

Abstract

Sponsored by the Laurel Trust this research project was conducted as part of a pilot for a new model of research for our Teaching School Alliance. The research foci was around an innovative approach to homework intervention that the school had invested in. The research adopted a randomized control design. Although the impact of the research was on the impact of technology on pupil learning in Maths the research raises interesting questions about the role of technology in teaching and learning.

Thomas Holloway. MA
mrhollowayt@strichardscc.com

Introduction

Following a successful bid for funding through the Laurel Trust initiative my aim was to begin to develop a research approach to practice within a primary setting. The teaching school alliance was keen to involve primary school partners in researching their practice and the primary school associate identified computer based Mathematics intervention for evaluation. The primary on which the research is taking place is part of an academy chain in the South East of England. The school had recently invested a substantial amount of money to provide the pupils with an online Mathematics learning platform called dbprimary.com. Essentially the research school wanted to investigate whether their investment was value for money when compared with more traditional paper based provision. The research school's main interpretation of 'value for money' revolved around the academic progress the pupils make in addition to developing a culture of independence with both class and homework.

Research question

My main overarching research question for this investigation is:

Will computer software improve Mathematics intervention within a primary setting?

Secondary questions arising from this overarching question:

Can Mathematics intervention improve pupil's academic progress?

Can Mathematics intervention improve engagement with homework?

School context

The research school is an academy and has around 350 pupils on roll and it is set in a deprived area of the South East. 47% of the entire cohort is on the Pupil Premium (PP) register with 16% of the cohort on the Special Educational Needs (SEN) register. The school is rated by Ofsted as Requires Improvement (dated May 2016), the main concern from the Ofsted report was pupil outcome (Ofsted, 2016). Staff turnover is comparatively high for the local area and numerous head teachers have led the school in the last decade, the current principal has been in the position for four years. The school is reasonably large and subsequently has two form entry.

Research design

Upon meeting the principal and year 5 and 1 teachers of the respective classes in March it was evident that the academy wanted to focus on Mathematics intervention linked with pupil homework and independent study. Historically, especially at KS2, outcomes for numeracy have been lower than both reading and writing, and this has had a significant impact on the research primary's triple score. Last year, for Key Stage 2, the numeracy score was 37%, which was significantly below reading (65%) and writing (67%).

The agreed research was intended to take six weeks during term 5. The research design centred around a traditional randomised controlled study (Cohen *et al*, 2013).

One year 5 class was to have access to an online Mathematics intervention programme called dbprimary.com (for the sake of this study this group has been referred to as the Virtual Learning Environment (VLE) group).

The research primary's original aim for using dbprimary was to engage children and their parents at home in developing key skills within core subject areas and also support the delivery of the Computing curriculum for teachers. Previously, the academy had trialled the use of 'legacy' systems. However, they were not used across the academy and they had little impact on outcomes.

One of the year 5 teachers involved in the research had also used it successfully at a school in which he has previously taught. The research primary was also nominated as a pilot school for the Academy Trust. The primary teacher experienced with dbprimary suggests that software has two main areas. One for collaboration and discussion of learning through forums, wikis and blogs between peers and pupils and teachers. The second, which is the focus of this research, is the learning library. In the learning library activities can be set for the whole class, groups, or individuals. These activities revolve around leading pupils learning as well as simple interactive games.

The other year 5 class was to receive a more 'traditional' paper based homework intervention from their teacher falling within the normal parameters of primary teaching, for this study this is the control group which I have referred to as the 'paper based' group.

Prior to the intervention both classes completed a Likert based pupil questionnaire (see appendices) gauging their opinions on Mathematics, homework, algebra and whether they prefer working independently or in groups. The Likert scale style of questionnaire was chosen as the questions are closed which are quick to complete, straightforward to code, and do not discriminate on the basis of how articulate the respondents are. However, Likert scales do not enable respondents to add any extra remarks or explanations, the closed nature of the questions may also lead to bias (Cohen *et al*, 2013). I believed for the sake of ease and the nature of the sample group this would be the best research tool.

Regarding sampling, as discussed earlier we decided to use the entire year group for both ethical purposes to ensure that all pupils received some Mathematics intervention as well as enabling more sophisticated statistics to be developed (Cohen, *et al*, 2013). Each class consists of between 25-30 pupils and therefore the year group comprises 50-60 pupils.

Each year 5 class was then given a cold test on algebra (an area of Mathematics not yet covered as the research school teach this in year 6). Following the six week intervention the two classes were then given the same test again, dubbed a 'hot' test to analyse progress. The pupils were then given a post intervention Likert based questionnaire to see if their opinions had altered following their respective interventions.

The same randomised controlled design was to be used with a year 1 class with the subject matter focusing on fractions. However, for practical reasons this parallel project was scaled back.

Literature review

Studies of the effectiveness of computer based learning has been inconclusive to date. While some purport to show a significant added value others indicate otherwise and it maybe that each is too context specific to allow for generalisation.

The Educational Endowment Foundation (EEF) have recently funded a large number of projects dedicated to helping schools effectively teach mathematics, following this research the EEF is in the process of commissioning a guidance report to provide evidence based recommendations which may run in parallel with our study. The EEF's teaching toolkit does not yet provide a specific pathway for any one particular strategy for teaching Mathematics, acknowledging that there is not a 'one size fits all' model (Educational Endowment Foundation, 2017a).

The EEF have also carried out some substantial work on homework setting in primary schools. Through extensive research the EEF have concluded that there is a relatively consistent picture that pupils in schools which set more homework perform better, although at primary this difference is small. Although the EEF does state that there is a lack of research into whether this is due to other factors. The studies discussed by the EEF also adopt randomised control studies (Educational Endowment Foundation, 2017b). The EEF state that parental engagement and short focussed tasks which build on work covered in school are of paramount importance (Educational Endowment Foundation, 2017b).

As the research primary school have always set Mathematics homework they were interested to see if parents engage more with using the dbprimary.com software.

Interestingly the EEF are also researching the use of digital platforms to provide feedback. Should this research be successful it may be worth expanding it to include teacher feedback. Although this report will not be provided until Spring 2020. (Educational Endowment Foundation, 2017c)

Using a critical friend from the University of Sussex I was able to have access to some resources from the university's electronic library. Whilst searching for computer assisted learning coupled with maths 12 hits were found. The three studies I have gone onto discuss were deemed the most relevant.

De Witte *et al* 2015 have assessed the use of computer assisted studies as a success. Their results suggest that schools (especially those with lower educational attainment who more frequently use such programmes) have achieved higher test scores, concluding that working with a similar maths program seems very effective (De Witt *et al*, 2015)

A more dated study by Fitzsimmons and Macnab (1999) in Canada also found that using a new (at the time) computer program to improve Maths retention in secondary school students showed that from 14 schools, investigating 1,184 pupils, positive effects were noted (Fitzsimmons and Macnab, 1999)

However, In the USA, Cannaday (1990) conducted a study using three different instructional approaches, the first was a computer assisted initiative, the second was teacher directed and the third was cooperative learning. All three approaches were used to determine the effectiveness in improving Maths performance of lower able pupils. 99 fourth grade pupils were randomly allocated one of three pathways for a five week summer period, the teachers selected the appropriate way to deliver each approach based on experience and interest, with additional training provided. The pupils were provided with a pre-test and a post-test incorporating questions assessing maths concepts, problems and computations from the year five curriculum. When the data was analysed significant progress was made for the entire cohort. Although, there was no significant difference between the three groups, interestingly, as a side note, there was also only a minimal difference found when assessing pupil behaviour (Cannaday, 1990). However, this study is somewhat dated and the use of online/digital intervention has progressed significantly in this time.

Even though published research is somewhat minor at the moment I believe that a pattern is emerging which suggests that the potential in computer based learning is vast, especially when considering Mathematics intervention.

Data analysis

For sake of ease and comparison I have divided the data analysis into four sections (pupil pre-intervention questionnaire, pre-intervention cold test data, pupil post intervention questionnaire and hot test data), for each section I will look at both inductive and deductive responses to inform my later tentative conclusions.

Pupil pre-intervention questionnaire

As described in the research design both year 5 classes were given an identical paper questionnaire to assess their current opinion on independent work, group work, teacher led teaching, homework, computer based work and algebra.

VLE group

The emerging findings from the VLE group (using the dbprimary.com software) were as expected (see appendices). Regarding learning styles, pupils generally like working in groups, although a variety of responses is evident. Pupils also generally like the teacher explaining new concepts.

With respect to homework there was a fairly even spread regarding enjoyment of partaking in the activity (see figure 1), most of the class believe that they complete all of their homework on a regular basis as well as putting in a good effort. The pupils really enjoy working on the computers and subsequently prefer completing homework if it is on the computer (figure 2), interestingly, more so than the paper based group. The VLE group know little about algebra at this point (figure 3)

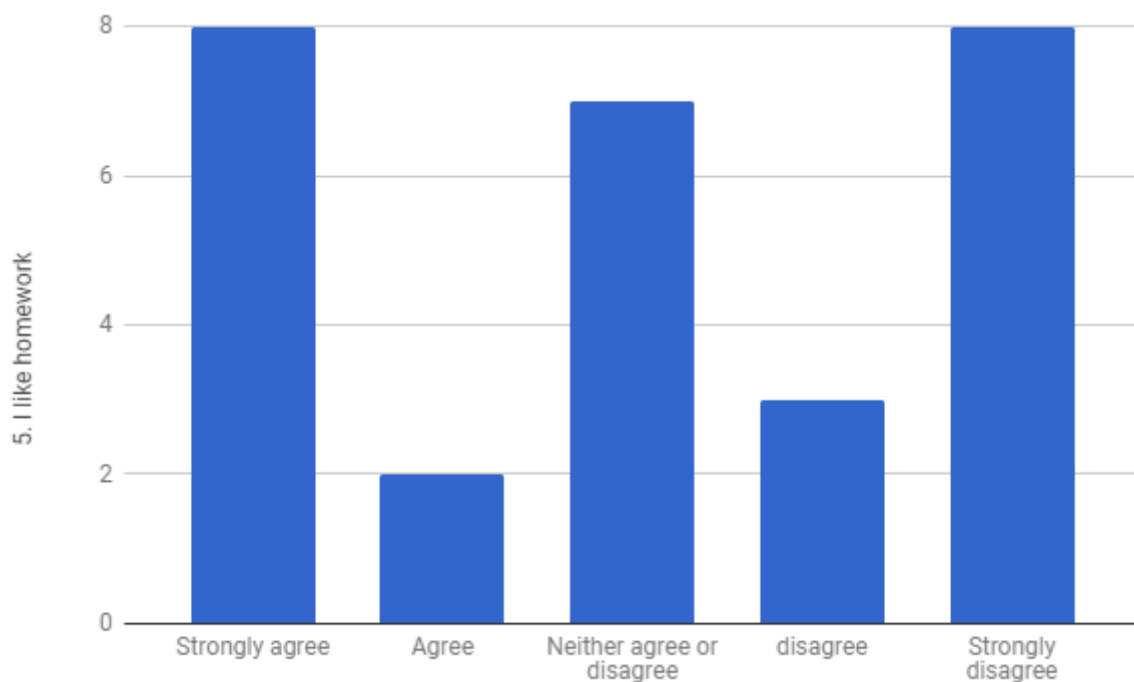


Figure 1: VLE group regarding homework enjoyment

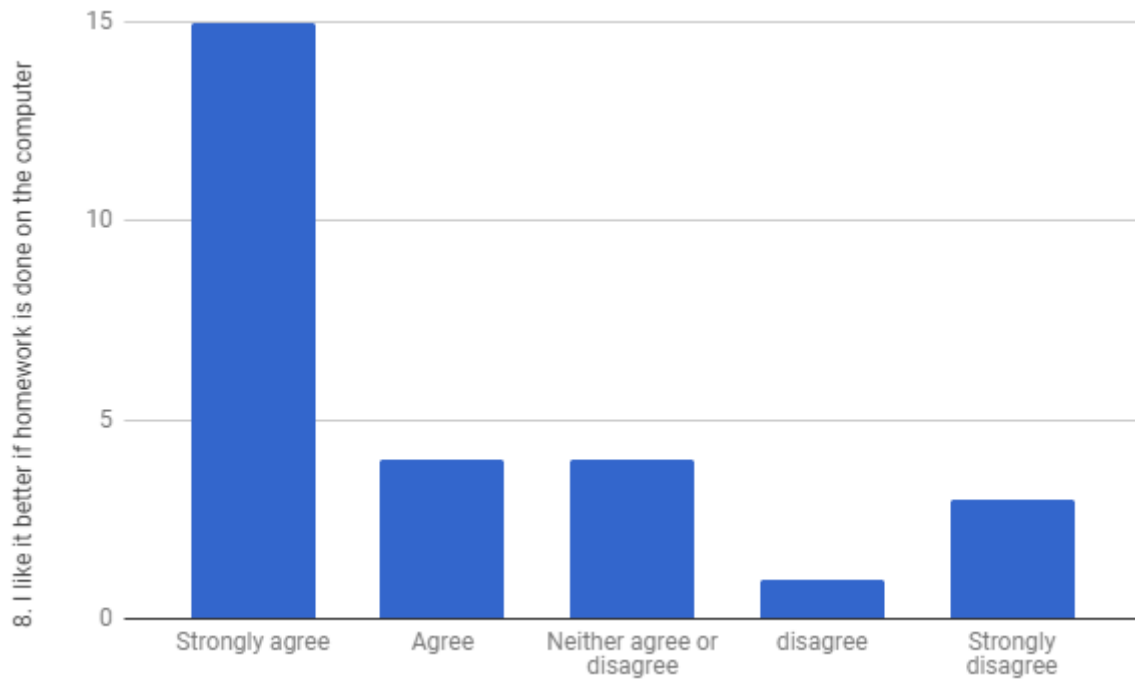


Figure 2: Homework on the computer

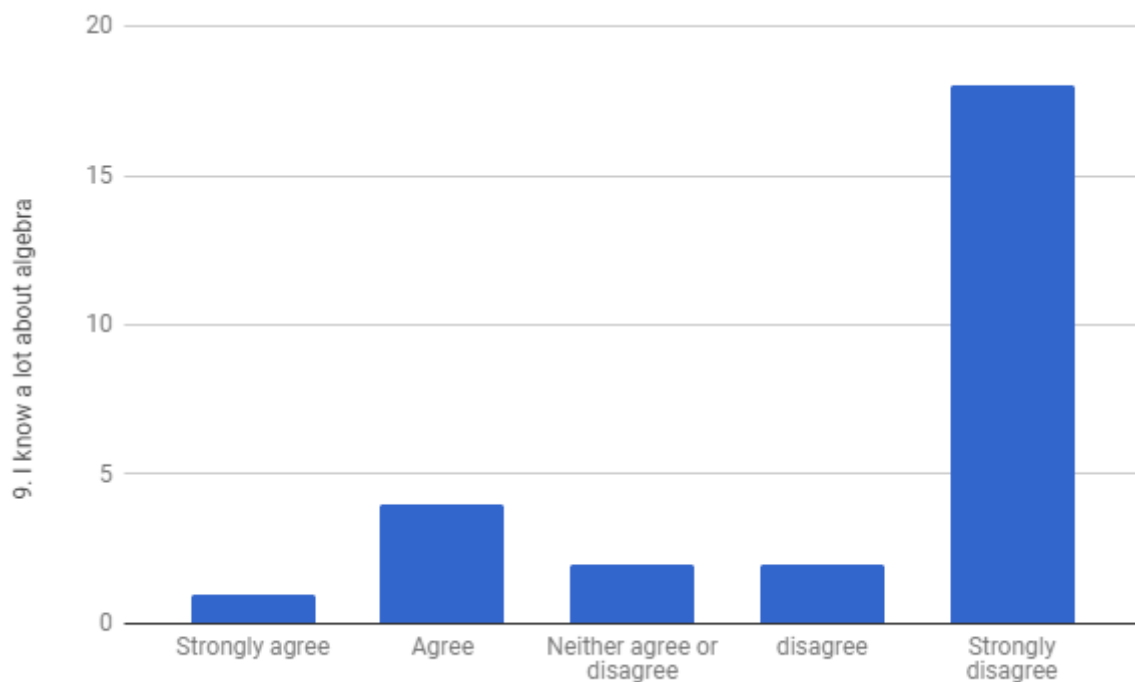


Figure 3: Knowledge of algebra

Paper based control group

As expected at this stage of the research there are many similarities between the two groups (see appendices). Again, more pupils in the paper based group favour working independently, although marginally. Teacher led tasks and group work are both preferred on the whole.

With regards to homework, the paper based class responded more negatively than the VLE group (see figure 4). However, they also believe that they put a good amount of effort into each homework set. The paper based group were overwhelmingly positive when discussing work on the computer. Curiously, they were not as concerned about completing homework on the computer compared to the VLE group (see figure 5), although it was still a preference. The paper based group also know very little about algebra at this point (see figure 6).

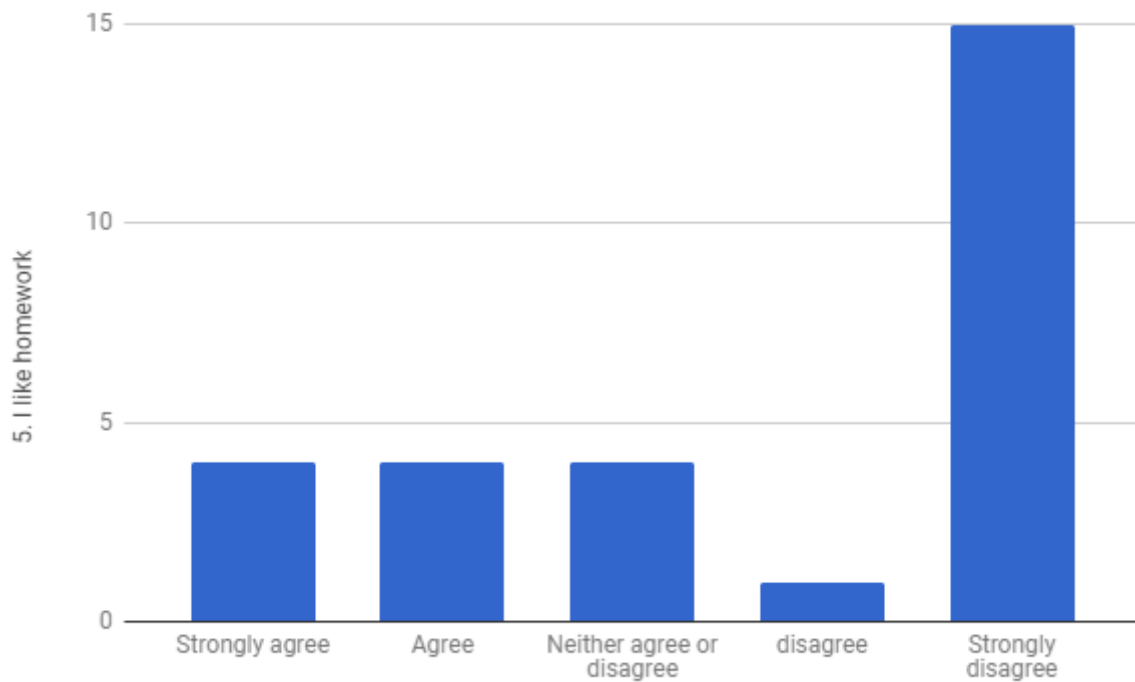


Figure 4: Paper based group regarding homework enjoyment

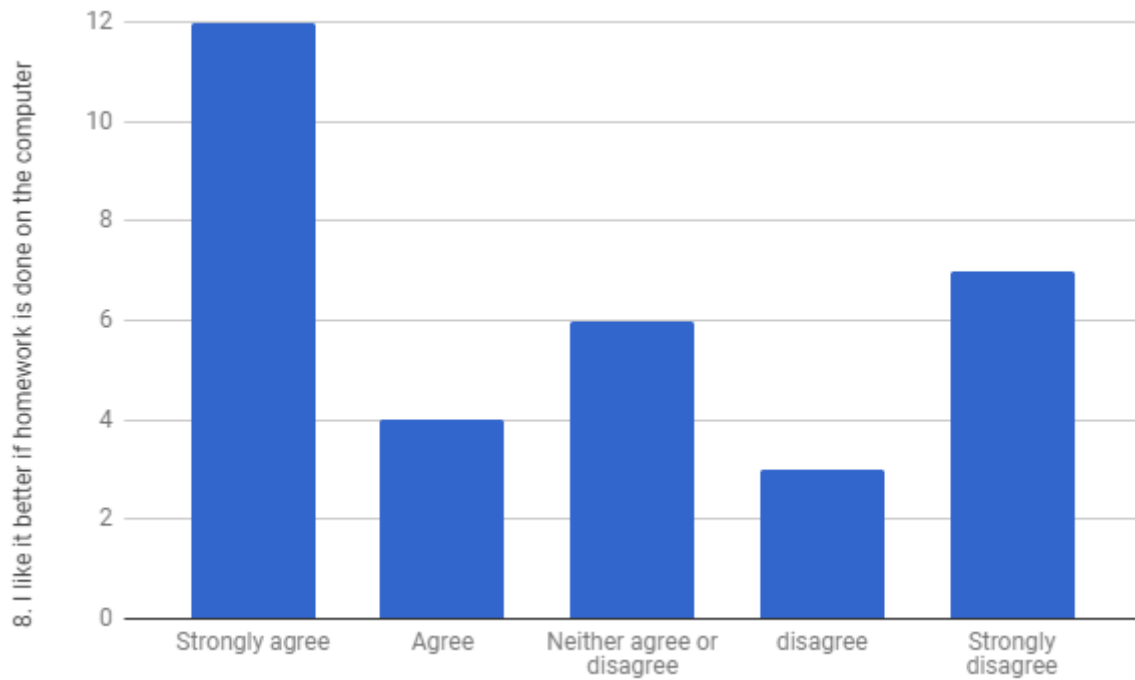


Figure 5: Paper based group: Homework on the computer

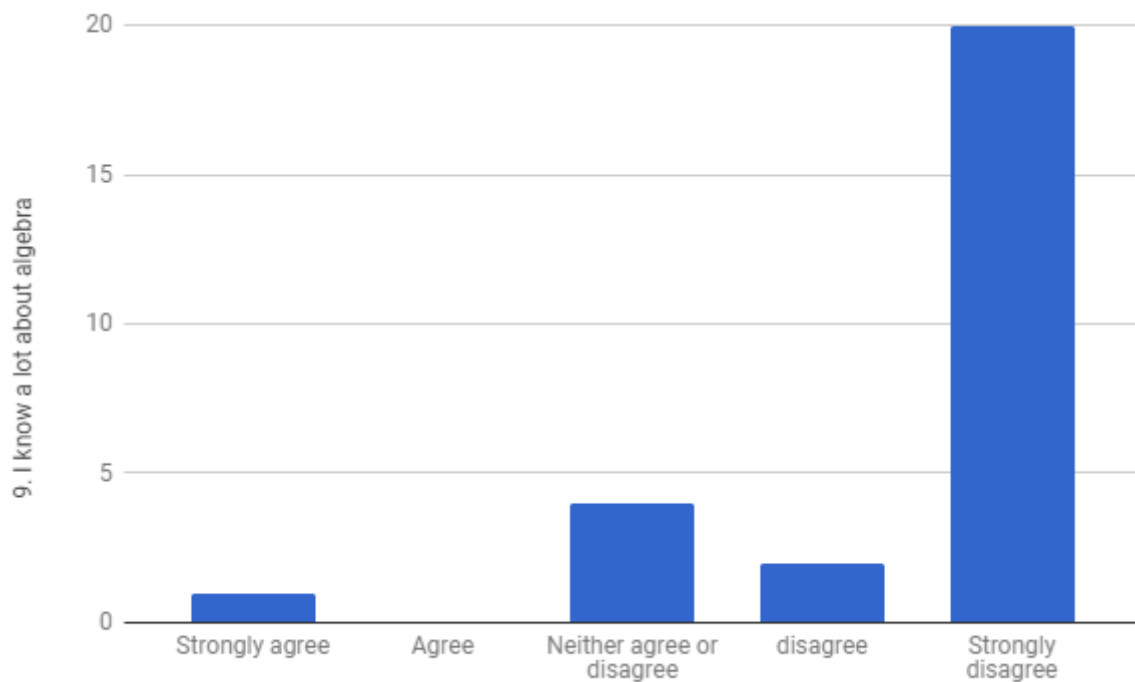


Figure 6: Knowledge of algebra

Pre-intervention cold test data

To gauge pupils understanding of algebra prior to their intervention both year 6 classes we provided with a 'cold' test (see appendices). The subject material is from the year 6

curriculum and therefore most pupils will not have been exposed to the subject content, in addition to this the pupil questionnaires show that pupils are not confident with this area of Maths (figures 3 and 6). The cold test comprised two papers from mathsframe.com each consisting of 20 marks and therefore 40 in total. The mathsframe.com software is separate to the dbprimary.com and should therefore provide no advantage to either group.

VLE group

The VLE scored an average of 18.8% across both papers with the pupils only getting an average of 7.5 out of 40.

Paper based group

The paper based group scored an average of 14.5% across both papers with the pupils only getting an average of 5.8 out of 40.

Pupil post intervention questionnaire

Following the intervention both classes were given a similar questionnaire to determine whether their opinions had changed. (see appendices). Regarding independent and group work there was little change. Both groups still prefer the teacher to explain content. This has

marginally increased following the independent intervention. Slightly more pupils like finding out new concepts using the computer.

There were significant changes with completion and enjoyment of Maths homework for the VLE group (figures 7 and 8). These changes are evident both from the pre intervention questionnaire and the control (paper based) group.

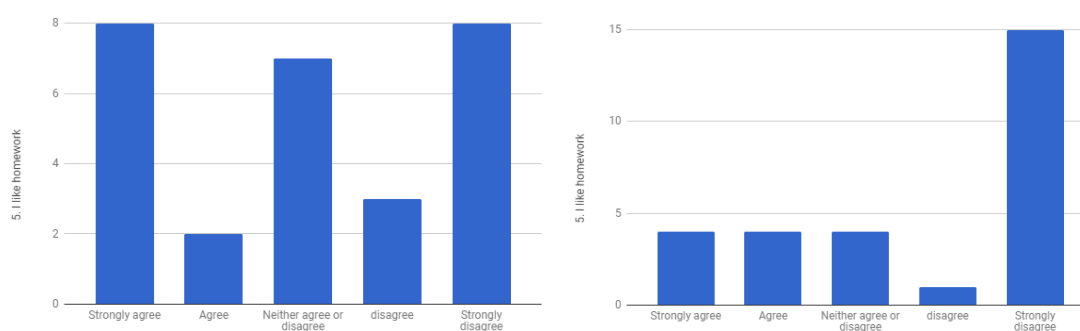


Figure 7: VLE group (left) and paper based group (right) regarding homework enjoyment pre intervention

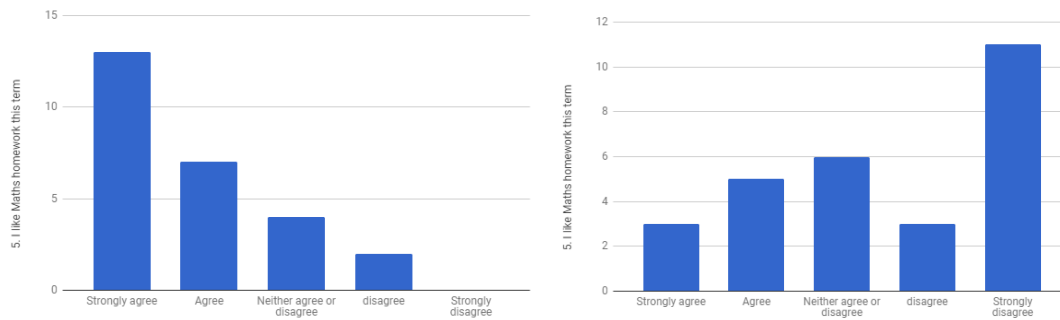


Figure 8: VLE group (left) and paper based group (right) regarding homework enjoyment post intervention

The other significant change with the VLE group was completing homework on the computer. The VLE group were far more positive in their outlook when comparing with both the control group and their previous feedback. Figures 9 and 10 show this relationship, although it is worth mentioning that the VLE group were more positive prior to intervention (figure 9).

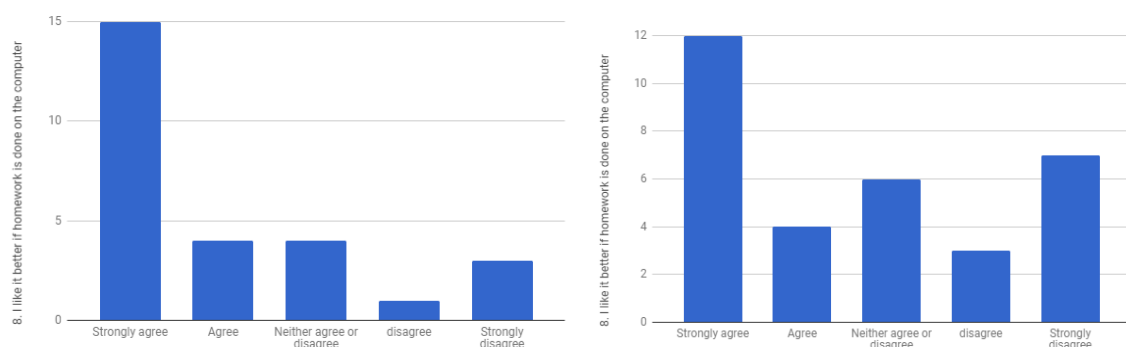


Figure 9: VLE group (left) and paper based group (right) regarding working on the computer pre intervention.

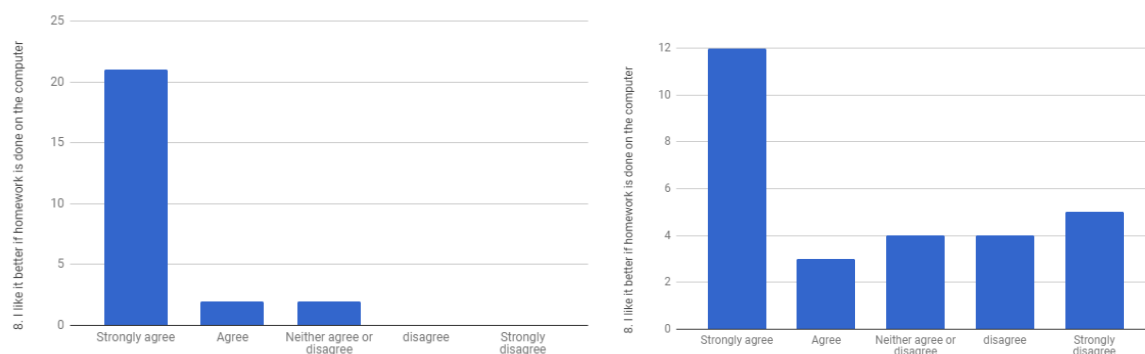


Figure 10: VLE group (left) and paper based group (right) regarding working on the computer post intervention.

Concerning the subject content both groups were still hesitant about algebra. However, there has been an evident improvement with the VLE group. Their confidence in the subject matter has increased, whereas although negligible the paper based group are even less confident (figures 11 and 12). This may be due to the fact they made minimal academic progress when possibly they felt they should have made more considering they were sitting the same test twice.

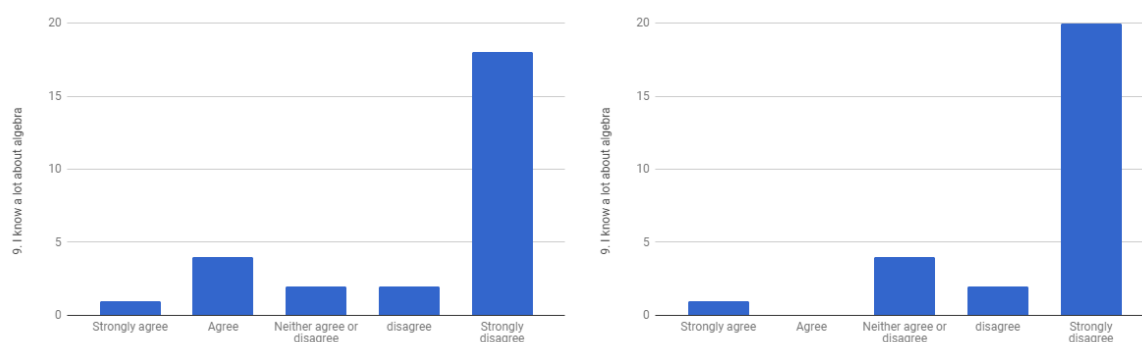


Figure 11: VLE group (left) and paper based group (right) regarding algebra knowledge pre intervention.

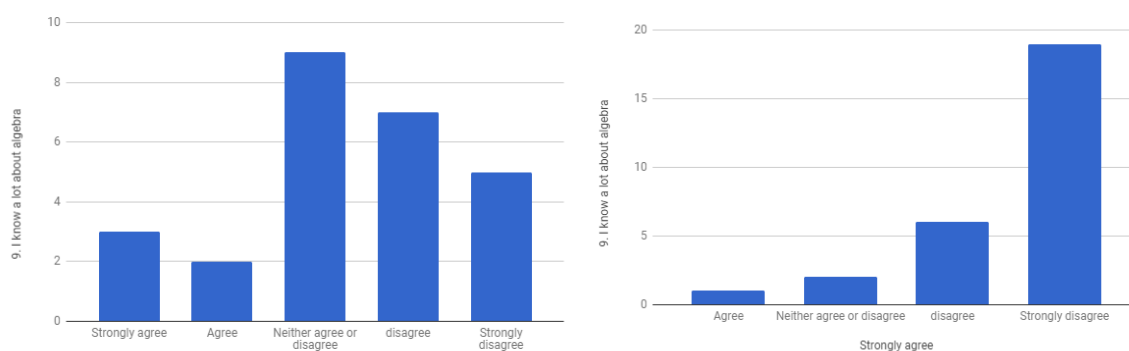


Figure 12: VLE group (left) and paper based group (right) regarding algebra knowledge post intervention.

Post intervention hot test data

Using the same two algebra tests from mathsframe.com for the pre-intervention cold test the pupils made the following academic progress.

VLE group

The VLE group scored an average of 33.8% across both papers with an average score of 13.5 out of 40. This shows that the mean average of the group increased by 15%. Of those present all pupils bar one made progress (the one pupil dropped one mark)

Paper based group

The paper based group scored an average of 20% across both papers with the pupils getting an average score of 8 out of 40. This shows that the mean average of the group increased by 5.5%. Of those present 7 out of 27 dropped marks.

Limitations

Although the design of the research was set to start by the beginning of term 5 substantial delays occurred this may have been due to teacher release or timetable issues.

In the end the research for year 1 failed to initiate, I am unsure as to why this was the case as the parameters for the research were decided at the initial meeting on the 22nd March at the primary research school, the project may have been overambitious. However, the intervention did eventually begin on the 12th May with year 5. Unfortunately, the research did not culminate until July 19th which allowed little time for further collaboration. The results analysed and the emerging tentative conclusions are therefore based on a reasonably small scale due to difficulties of conducting practitioner research across two institutions, further in-house research may combat this limitation.

Through the research I have noted that it is imperative that any collaboration requires parity and mutual goals amongst primary and secondary participants (Piercey, 2010). At the initial meeting it was decided that using email would be the best tool to enable this collaboration. However, emails were not always answered swiftly which resulted in the research becoming difficult and possibly unsustainable going forward with future collaborative practice.

Although neither research group (years 1 and 5) were completing Standardised Assessment (SATs) this academic year, the pressure of SATs within the school environment did contribute to the delay in our research as hypothesised by Galton (2002) amongst other studies.

Another limitation was the nature of the intervention. It seems to be a little unclear how often the groups partook in their respective intervention. The teacher I had contact with informed me that the VLE group received two support sessions and the rest of the intervention was set as additional homework. However, I do not know how often they accessed the online program. The paper based group were supposed to have spent the same amount of time on their intervention. However, I cannot say how frequently this occurred which is part of the difficulty in my position as an outside practitioner researcher. In fact, one pupil in the paper based control group commented on the side of their post intervention questionnaire that they had not received any Maths homework during the intervention period. I do not know the entire truth of this comment but it does imply that the research may not have generated accurate results. Unfortunately, due to the delay in data capture I do not have the time to enquire as to the frequency of the paper based intervention.

One other factor worth noting is the starting position of the two Year 5 classes. The VLE group scored 18.8% in the cold test, whereas the paper based group scored 14.5%. Although the difference is not vast it is worth noting that they scored higher when considering any future recommendations.

Conclusions

As this research has been conducted over a small scale any emerging findings have to be appreciated as tentative.

From the data analysis it was evident that pupils from both the VLE group and the paper based group knew little about the substantive topic, this was not only evident in pupil perception through their questionnaires but also data collected from the cold test they sat prior to their intervention (the VLE group and paper based group scored 18.8% and 14.5% respectively). Through pupil questionnaires it also emerged that pupils generally dislike

homework (significantly with regards to the paper based group), but they do prefer completing homework using the computer.

After the intervention it is apparent that the VLE group made more significant progress than the control paper based group (an increase of 15% compared with 5.5%). This data alone would suggest that the VLE intervention was far more of a success, this hot test data was also supported by the pupil questionnaires, with pupils from the VLE group reporting more knowledge with algebra. The pupil questionnaires also showed a shift in pupil perceptions of homework and working on the computer. The data suggested that via dbprimary.com their attitude towards each has improved.

Therefore, recapping on my research question:
Will computer software improve Mathematics intervention within a primary setting?

The answer appears to be a tentative yes based on the data collected.

Recommendations

From the data it is evident that the computer based Maths intervention has been a success. However, certain recommendations need to be considered before any further research or actions can be taken. To increase the rigour of the data collection I believe that the teachers involved need to ensure that any data agreed must be followed (within reason) and that

equal timing should be given to both the control group (paper based group) and research group (VLE group) to generate valid results. To guarantee this is established the time spent on the intervention must be tracked, although I appreciate that part of the purpose of the research was to engage pupils with homework.

With regards to partnership development I believe that it is necessary that all parties need to meet more than once, an interim meeting would suffice to iron out any issues that may arise from the data collection and ensure that the research is workable and timely. It has been very interesting working with a primary academy in the local area and I hope that this piece of research will help to develop links between the two institutions.

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Appendix
Pupil questionnaire 1

For each question tick the face which represents how you feel.

1. I like working on my own



1. I like working in groups



1. I like it when the teacher shows me what to do in Maths



1. I like finding out how to do things on the computer



1. I like homework



1. I always do my homework



1. I always try my hardest with homework



1. I like it better if homework is done on the computer



1. I know a lot about algebra



Thank you for completing the questionnaire

Now you have completed some work in algebra please answer the following questionnaire. For each question tick the face which represents how you feel.

1. I like working on my own



1. I like working in groups



1. I like it when the teacher shows me what to do in Maths



1. I like finding out how to do things on the computer



1. I really like Maths homework this term/



1. This term I always did my homework in Maths.



1. This term I have always tried my hardest with homework.



1. I like it better if homework is done on the computer



1. I know a lot about algebra



Thank you for completing the questionnaire

VLE group - pre-intervention pupil questionnaire feedback

	Strongly agree	Agree	Neither agree or disagree	disagree	Strongly disagree
1. I like working on my own	8	5	11	2	2

2. I like working in groups	11	9	3	2	3
3. I like it when the teacher shows me what to do in maths	11	8	6	2	1
4. I like finding out how to do things on the computer	19	2	4		3
5. I like homework	8	2	7	3	8
6. I always do my homework	9	7	10	1	1
7. I always try my hardest with homework	14	7	6		1
8. I like it better if homework is done on the computer	15	4	4	1	3
9. I know a lot about algebra	1	4	2	2	18

Paper based group - pre-intervention pupil questionnaire feedback

	Strongly agree	Agree	Neither agree or disagree	disagree	Strongly disagree
1. I like working on my own	4	8	8	5	3
2. I like working in groups	10	4	8	3	3
3. I like it when the teacher shows me what to do in maths	10	4	10	1	3
4. I like finding out how to do things on the computer	15	7	5	1	
5. I like homework	4	4	4	1	15
6. I always do my homework	7	4	12	1	2
7. I always try my hardest with homework	14	10	3		1
8. I like it better if homework is done on the computer	12	4	6	3	7
9. I know a lot about algebra	1		4	2	20

VLE group - post intervention pupil questionnaire feedback

	Strongly agree	Agree	Neither agree or disagree	disagree	Strongly disagree
1. I like working on my own	8	6	8	3	1
2. I like working in groups	11	9	4	1	1
3. I like it when the teacher shows me what to do in maths	13	6	8		
4. I like finding out how to do things on the computer	20	4	1		1
5. I like Maths homework this term	13	7	4	2	

6. This term I always did my Maths homework	9	11	3	2	1
7. This term I have always tried my hardest with homework	14	7	3		1
8. I like it better if homework is done on the computer	21	2	2		
9. I know a lot about algebra	3	2	9	7	5

Paper based group - post intervention pupil questionnaire feedback

	Strongly agree	Agree	Neither agree or disagree	disagree	Strongly disagree
1. I like working on my own	7	5	13	3	1
2. I like working in groups	15	4	5	1	4
3. I like it when the teacher shows me what to do in maths	14	6	7	2	
4. I like finding out how to do things on the computer	15	5	6	2	1
5. I like Maths homework this term	3	5	6	3	11
6. This term I always did my Maths homework	2	3	8	5	9
7. This term I have always tried my hardest with homework	13	3	8	2	2
8. I like it better if homework is done on the computer	12	3	4	4	5
9. I know a lot about algebra		1	2	6	19

Appendix

Enquiry 1 Case Study 2

How does a reorganisation of SLT roles and duties affect intervention and progress, specifically in phonics, in a primary setting?

Abstract

Sponsored by the Laurel Trust this research project was conducted as part of a pilot for a new model of research for our Teaching School Alliance. The research foci was around an innovative approach to intervention which the school was testing for the first time. The research adopted a mixed methodology approach. Although the impact of the research was on pupil progress the key question was around the decision to adjust the staffing.

John Steele. MA

mrsteelej@strichardscs.com

Research Context

The research project funded by the Laurel Trust, took place within the context of a wider project which I will briefly explain.

Having completed a Research Masters in 2016, two colleagues and I set about designing a model that would facilitate practitioner research in our own school settings. This was in response to a number of factors:

- Masters qualified teachers often find their research is forgotten quickly upon completing their studies, and the learning from this academic experience is not adequately disseminated or made use of.
- Research by teachers, on their own pupils and in their own contexts, does not take place often enough.
- Practitioner Researcher (teachers who study and research their own practice) has been shown to have many benefits in terms of improving pedagogy and engagement (Ebbutt, 2002).
- An increasing desire and necessity for evidence based practice in education.

We created a group of “Research Leaders” within the school who, with our guidance and research expertise, went on to investigate a particular area of interest. The researchers had a high degree of autonomy, although their participation in the group was predicated on the fact that whatever topic or issue they chose to investigate must in some way relate to the school’s Three Year Plan. In this way, teachers could engage with their own research and produce findings and new knowledge that was mutually beneficial to them and the school’s efforts to improve.

This year-long project culminated in a University-Inspired poster presentation given by each of the researchers, detailing their projects and results.

The long term aim is to head towards a situation where we can describe our school as having a “Research Culture” (Ebbutt, 2002), and the Laurel Trust project is firmly situated within this movement. The funding provided by the Trust allowed us to expand beyond the walls of the school, and branch out into local primary schools in an attempt to get them to engage with their own research in their own settings. It was one of these primary schools in which the Laurel Trust research took place, which I will now detail below.

Rationale and Aims

This local primary schools’ head-teacher decided to restructure the responsibilities of the four members of Senior Leadership Team (SLT), taking them off teaching timetables and putting them in charge of intervention for both Literacy and Numeracy. The aim of this was twofold: to improve intervention provision by utilising the expertise and standing of the Senior Leaders, and to see if such a system would prove more cost effective than established methods of intervention.

The strategy for intervention proved to be extremely successful, with all pupils making significant progress in terms of their phonics learning. Results seem to support the head-teacher’s notion that it is *who* delivers intervention, rather than *how* it is delivered, that leads to success.

My involvement was to facilitate the capturing of quantitative and qualitative data to ensure it was done rigorously. I would then analyse and write up the results on behalf of the school, enabling an evaluation of the project's success. This is an important element of the collaboration, as the writing up of results is often something that can prove a barrier to research as teachers often do not have the time required. It also adds a measure of accountability and ensures that the research cannot "fizzle out" and be swept away by the operational demands of everyday teaching.

School Context

The study took place in a primary academy in East Sussex. The school has a total of 351 pupils on roll, of which 183 are boys, and 168 girls. Around 33% of the pupils are Pupil Premium, and the catchment area is one of high deprivation. Significant vulnerable groups in the school include the 119 Pupil Premium pupils, and around 14% of the cohort have Special Educational Needs.

2016 results	Reading %	Writing %	Maths %
Y1	79.6	73.5	75.5
Y2	70.2	56.5	69.6
Y3	77.1	64.6	63.6
Y4	67.6	52.9	66.7
Y5	76.7	67.4	68.2
Y6	41.2	55.9	58.8

Children who achieved ARE or above by the end of term 6.

The table above indicates the percentage of pupils at or above Age Related Expectations (ARE) in reading, writing and maths in 2016. The pattern shows an evident decay of achievement from Year 1 to Year 6. This is a concern for the school, and provides context and a rationale for the intervention strategy.

Methodology

Methodological Position

For the purposes of this research I have adopted a mixed methods approach. This allows the application of quantitative methods to establish patterns while also using qualitative methods to explore the interpretations and experiences of participants.

Research Design

There are some similarities between this action research and what Bourke (2009) terms "participatory research", as the school being researched was "involved in the research process... in project planning, study design, choices on data collection and analysis, and direction of the utilisation of outcomes" (Bourke, 2009, p.458). Whilst I was involved as both a participant and an observer, the primary school SLT teachers were empowered to deliver the intervention as they saw fit, and to address the issues that concerned *their* pupils in *their* classrooms. The design reflected the head-teacher's view that the personnel carrying out the intervention, SLT teachers whom she considered to be "outstanding", are what make the difference when it comes to pupil progress. The benefit of this is that the SLT teachers, through the action research process, could develop their own critical consciousness and tailor and re-shape their own worlds in their own specific contexts (Fals-Borda and Rahman, 1991).

The action research developed from the model suggested by McNiff (2002) in which there are four main steps: planning, acting, observing and reflecting.

The design was as follows:

1. The SLT planned their intervention on specific groups
2. Group test using the national phonics screening test
3. Carry out intervention over the course of five to six weeks
4. Retest with the national phonics screening test
5. Examined the data
6. Reflect on findings (written up by myself, overseen by the University of Sussex)
7. Repeat cycle

It was through this design that participants became active agents in their own research, facilitated by my researcher-role and my data collection processes. The simplicity of the design enabled teachers to continue to operate as practitioners with limited disruption to their normal timetables, whilst the majority of tasks completed were within the bounds of normal teacher functions (planning and marking). I saw this as crucial to the success of the action research as a whole as additional workload and time burdens would inevitably be weighed against any successes considered by the class teachers, and would potentially influence their decision to take part in the next action research cycle. By attempting to bridge the gap between academic research and classroom practice I feel the action research was in keeping with Glaser and Strauss' "Grounded Theory", in which educational research is grounded in the reality of the classroom (Glaser, 1968).

In terms of my own research design as researcher examining the primary school's SLT reorganisation experiment, I used a mixed methods approach and collected qualitative and quantitative data through interviews and phonics screening test results. The interviews took place with one of the SLT teachers who delivered literacy intervention, both before and after the intervention began. I also interviewed the head-teacher before and after the project was complete to gauge her perspective on the success or failure of the re-structuring idea. Finally, the quantitative data collected from the phonics screening tests completed before and after the intervention provided the measure by which the experiment could be judged.

Ethical Considerations

Although pupil progress was part of the research interest, it was not the direct focus which was actually the staffing of planned intervention. Therefore, pupils were not given the opportunity to "opt out" of the action research as the nature and style of the intervention did not differ significantly from what would be considered normal teaching practice. Though nothing that teachers planned and taught should have had a detrimental effect on progress, the short time scale involved (each pairing completed their project within five or six weeks) would also limit any unforeseen damage caused to pupil progress. It was also not practical, or indeed ethically necessary to exclude an entire group of pupils for the sake of one pupil.

Participants

The data in this report focusses on one member of SLT, and two different intervention groups (14 year one children in total).

Methods

My research design used a mixed methods approach, utilising three different instruments for data collection: questionnaires, interviews and focus groups. In addition, I collected empirical data in the form of the phonics screening tests before and after the intervention took place. This allowed for rich, multi-layered data which can offer different interpretations of the same event. It also supports a more robust triangulation process as the large amount of data available can be compared in various ways to strengthen agreement over interpretations, and improve the quality, of the results.

Questionnaires

Questionnaires provided a quantitative dimension. They allowed for the collection of a large amount of structured data in a very short space of time (Cohen, 2013). In addition, they were simple to complete and suitable for working with young children. The anonymity provided was another valuable asset; my absence whilst pupils completed the questionnaires removed the pressure that could be created by my presence, improving, it is hoped, the honesty of responses (Cohen, 2013). They were designed with closed questions and a Likert scale response framework, with smiley faces indicating the levels of agreement or disagreement. This style does not discriminate on the basis of levels of articulation between the children, but lacks the ability to add open ended answers or comments.

Interviews

I included recorded semi-structured interviews with an SLT teacher carrying out the literacy intervention to add another layer of data to my research, and “to gather responses which are richer and more informative than questionnaire data” (Koshy, 2010, p.85).

Taking place before and after the intervention, interviews had the benefit of exploring certain topics in greater depth, whilst also addressing the research questions. The “*semi-structured interview*” method used both questions and sub-questions to “probe ideas further”, but did not have to stick strictly to the pre-determined questions (Koshy, 2010, p.87).

I recorded the interview using a voice recorder. Though video recording the interview is perhaps the most accurate and powerful way of capturing the reality of situations (McNiff, 2003), the presence of a video recorder might have been invasive and off-putting, potentially threatening the usefulness and validity of the results. The voice recordings immersed me in the data and formed the starting point for thorough data analysis.

Focus Groups

The focus groups with some of the pupils involved in the literacy intervention were recorded and completed my aims to triangulate the data collected, balancing the views of the pupils with those of the SLT teacher and head-teacher expressed in their interviews.

Emerging Findings

Two groups of pupils were sampled and completed two tests twice, titled “Phase 3” and “Phase 5” assessment. The pupils completed the Phase 3 and Phase 5 assessment, then the intervention took place, and then the assessments were completed again. Data collected clearly shows that the intervention was a success. All pupils improved their phonics scores.

Group 1 Phase 3 Assessment

Results show that all pupils improved. There were 46 fewer total errors after intervention, with an average increase of 5.1 in correct scores per pupil. Whilst in total the group managed to achieve 70% total correct before the intervention, this moved up to 97.6% after the intervention.

The table below details the results of all pupils for the Phase 3 before and after assessment.

Group 1 Phase 3 Assessment		Before Intervention		After Intervention		
Pupil		Correct	Incorrect	Correct	Incorrect	Gaps After Intervention
1		15	4	19	0	
2		15	4	19	0	
3		13	6	18	1	1
4		11	8	19	0	
5		15	4	19	0	
6		16	3	19	0	
7		13	6	19	0	
8		10	9	17	2	2
9		13	6	18	1	1
Totals		121	50	167	4	4

Figure 1: A table showing the results of Group 1 for the Phase 3 assessment

The total of only 4 errors after the intervention, compared the 50 errors made before, is clear evidence of the success of the intervention. Whereas 100% of the pupils made mistakes the first time round, 6 out of the 9 pupils made no errors at their second attempt.

Group 1 Phase 5 Assessment

Again, all pupils improved. There were 108 fewer errors after the intervention, and an average increase of 12 per pupil in correct scores. In this test there was a comparatively low success rate to begin with, with only 33% total correct answers achieved by the whole group before the intervention. This figure increased significantly to 96.6% total correct after the intervention.

Group 1 Phase 5 Assessment		Before Intervention		After Intervention		
		Correct	Incorrect	Correct	Incorrect	Gaps After Intervention
Totals		66	114	174	6	6

Figure 2: A table showing the total results for Group 1, Phase 3 assessment

Group 1 Questionnaires Before and After the Intervention

The table below details the questions asked and the pupil's responses using a Likert Scale before and after the intervention took place. The questions were written in a manner that was deemed intelligible for a young group of participants.

Group 1 Before Questionnaire	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
1. I know a lot about phonics	4	2	3		
2. In my normal class, I am getting better at phonics	6	3			
3. I like working in small groups	7		2		
4. I think working in small groups helps me learn	7	1	1		
5. I don't mind missing some assembly time to work in small group	4	2	3		
6. I always try my hardest in my normal class	5	3	1		
7. I always try my hardest in small groups	7	2			
Total	40	13	10	0	0
Group 1 After Questionnaire	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
1. I know a lot about phonics	5	3			1
2. In my normal class, I am getting better at phonics	6	3			
3. I like working in small groups	6	2	1		
4. I think working in small groups helps me learn	8		1		
5. I don't mind missing some assembly time to work in small group	6	1			2
6. I always try my hardest in my normal class	5	3			1
7. I always try my hardest in small groups	9				
Total	45	12	2	0	4

Figure 3: A table showing the total results for Group 1 questionnaires before and after the intervention

The number of pupils indicating that they “strongly agree” increased by 5 after the intervention, clearly suggesting a positive overall feeling towards the intervention they were involved in. However, the disagree section increased from 0 to 4 - all in the “strongly disagree” category. Half of these responses indicating dissatisfaction can be attributed to the gradual dissent the pupils began to feel towards missing out on assembly time. When first surveyed, it is possible pupils did not realise the amount of time they would lose from assemblies, and that at first it seemed novel and exciting to be in their own little group. This novelty then declined as the weeks passed. Another disagree came from the question “I always try my hardest in normal class”. This is revealing as the pupil indicated they agreed with this statement *before* the intervention. The resulting work in small groups may have demonstrated to the individual that they were not working as hard as they could have in their “normal class” time, leading them to change their opinion. Generally pupils acknowledged they worked harder in small groups - all 9 “strongly agreed” with this statement by the end, compared to 5 who “strongly agreed” that they tried their hardest in their normal classes.

Group 2 Phase 3 Assessment

Group 2 Phase 3 Assessment	Before Intervention		After Intervention		
Pupil	Correct	Incorrect	Correct	Incorrect	Gaps After Intervention
1	11	8	19	0	
2	10	9	17	2	2
3	11	8	18	1	1
4	11	8	16	3	3
5	13	6	19		0
6	10	9	17	2	2
7	13	6	18	1	1
Totals	79	54	124	9	9

Figure 4: A table showing the results of Group 2 for the Phase 3 assessment

Similarly to Group 1, all pupils in Group 2 improved after the intervention in their Phase 3 assessment. There were 45 fewer total errors and an average increase of 6.5 in correct scores per pupil. The total number of correct answers for the group increased by 33.9%, rising to 93.2%.

Group 2 Phase 5 Assessment

The second Phase 5 assessment showed 94 fewer total errors after the intervention and an average increase of 13.5 in correct scores per pupil. This test in this group greatest range increase in correct answers, the whole group moving from 26.4% total correct before the intervention, to 93.5% total correct after the intervention.

Group 2 Questionnaires Before and After the Intervention

Group 2 Before Questionnaire	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
1. I know a lot about phonics	1	3	3		
2. In my normal class, I am getting better at phonics	3	3	1		
3. I like working in small groups	5	1	1		
4. I think working in small groups helps me learn	6	1			
5. I don't mind missing some assembly time to work in small groups	3	2	1	1	
6. I always try my hardest in my normal classs	5	2			
7. I always try my hardest in small groups	4	1	2		
Total	27	13	8	1	0
Group 2 After Questionnaire	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
1. I know a lot about phonics	5	1	1		
2. In my normal class, I am getting better at phonics	3	2	2		
3. I like working in small groups	7				
4. I think working in small groups helps me learn	6		1		
5. I don't mind missing some assembly time to work in small groups	5	2			
6. I always try my hardest in my normal classs	1	1	5		
7. I always try my hardest in small groups	7				
Total	34	6	9	0	0

Figure 5: A table showing the total results for Group 2 questionnaires before and after the intervention

The table shows the answers given by pupils to the questionnaire before and after the intervention. The “strongly agree” category increased by 7, despite the total agree section remaining at 40. This means pupils became more positive as their agreement grew stronger as a result of the intervention. The disagree section also decreased by 1, supporting this assertion. There were zero strongly disagrees before and after the intervention. Generally pupils acknowledged that they worked harder in small groups - all 7 strongly agreed by the end, compared to 5 saying they were “not sure” they tried their hardest in normal class before the intervention. This could indicate pupils realising that the small group environment worked particularly well for them.

In contrast to Group 1, after the intervention, all pupils agreed that they didn’t mind missing some assembly time to work in small groups.

Limitations

The experiment was carried out in a very particular set of circumstances. The school was fortunate that through natural staff wastage (retirements, teachers leaving for other schools etc), they were able to trial the restructuring, and there can be little doubt that in terms of the intervention, it was a success. However, in terms of generalising to other schools, it must be acknowledged that such a similar trial is unlikely to be possible. Indeed, WS admitted that the programme would likely not continue in the same form in the next academic year because it was simply too expensive to release teachers from their teaching timetable (in fact the model was so successful that it has continued for another year).

The experiment could have benefitted from a comparative analysis of one of the other intervention groups. This would allow for more comprehensive and reliable conclusions. However, the lack of a set intervention structure (teachers delivered intervention however they saw fit without any prescriptive or jointly planned approaches) would have made it difficult in terms of data analysis. At the very least it might have helped to establish whether or not it was the teacher element that influenced the outcome of the intervention, but other benefits would have been negligible.

A closer inspection of how the intervention was delivered could have proved fruitful, e.g. through observations and work scrutiny, though this might also have placed undue stress on the SLT teachers involved.

Finally, it was unclear whether or not pupils completed the same assessment twice, before and after the intervention. If they did, one would expect pupil scores to increase simply from familiarity with the test, negating to some extent the data suggesting the intervention's positive impact. However, the huge disparity between the before and after results could not simply be attributed to test familiarity.

Conclusions

As this research has been conducted over a small scale and in a very specific set of circumstances, emerging findings must be appreciated as tentative. However, it is evident from the data analysis that the restructuring of SLT, freeing them from teaching timetables and allowing them to deliver intervention, was a success in terms of pupil progress. Pupils all made consistent improvements in their phonics scores, with an average cohort success rate moving from 47.1% before, to 95.2% after the intervention.

Recommendations

Despite the evident success of the intervention, there are certain recommendations that would improve the rigour of the data collection process. Analysis of the intervention method and process needs to take place, as well as collection of data from any or all other intervention groups. Time spent in the intervention by pupils should be tracked, to establish parity of results. A cost benefit analysis of the experiment would also be helpful to establish whether the experiment's results were proportionate to the overall cost for the school.

With regard to partnership development between our two schools, and the establishment of a research culture in the test school, it would be useful for data collection to continue, but for the school to be responsible for its collation and analysis. Their involvement in the research process theoretically has given them the tools to continue on their own without the necessity for an outside agency.

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