Innovation in teaching and learning

A partnership between researchers, educators and company developers to identify pedagogies that inspire pupil achievement

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Summary

St Philip Howard Catholic Voluntary Academy is a Roman Catholic secondary school located in Glossop in northern Derbyshire. It provides secondary education for children in the Glossopdale and Longdendale valleys. Substantial across-the-board investment is allowing the Academy to significantly improve facilities, helping ensure that St. Philip Howard, its students and staff, can look forward to a bright and successful future. This includes renewal of the ICT infrastructure, a task undertaken by Gaia Technologies in the summer of 2015.

As part of the package of services offered by Gaia the Academy was offered training, professional development and project support. After an initial review of requirements Gaia agreed to support three pieces of work:

- Consultancy to help rationalise the approach to use of Cloud services (Office 365 and Google Apps for Education) and the virtual learning environment (VLE) – My Learning UK[1];
- Facilitation of a teaching and learning project to explore the use of the new technology with a small group of Y7 students during their literacy support lessons (the subject of this research); and
- Delivery of a transition project making use of green screen video technology.

It was agreed that Dr. Christina Preston (MirandaNet/De Montfort University) would capture the outcomes of the literacy project through a short piece of practice-based research. The aim was to:

- to see if the students would be more motivated to write and produce better quality writing when using ICT;
- to test different software and see which works to effect in this context;
- to identify the ICT trip wires that might prevent staff and students making use of ICT as a tool for teaching & learning.

This small intervention has been valuable in identifying issues for the school and for Gaia about how the whole school system can be optimised to make full use of the investment in technology.

Firstly, a tribute must be paid to the students who were such an important element of this pilot. The group were responsive and tolerant of the experimental nature of lessons and instances of failure. Students were enthusiastically talking about the project in their breaks amongst each other and to the staff. They were motivated by knowing that this

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[1] http://www.mylearningltd.com/

was an experiment although the intervention did not proceed perfectly they remained engaged and there is evidence of achievement.

Unexpected outcomes were achieved by allowing the students to choose their own themes. For one pupil this approach produced an enthusiasm for learning that she had not displayed before. This was seen as a result of allowing her to learn within a subject context of her own choice.

The second research consideration has been staff involvement. Teachers who had had some involvement spoke of their enjoyment in the project and wished that teachers and teaching assistants had been able to see more. Overall this has created an atmosphere where teachers can feel free to explore literacy in new ways.

However, some of the professional advantages were lost because teachers and teaching assistants were not timetabled to co-deliver the lessons across the full two hours for the six weeks and thus learn more 'on the job'. To learn more effectively the teachers needed to be there most of the time.

The third measure of change is forthcoming alterations to school policy. Although the intervention is in its early stages the SMT have seen the potential and identified how they can best play a role. The pilot showed that the need to train educationalists to look closely at what technologies can promote is paramount because the staff must take ownership in order to gain good results.

In terms of technology the intervention evidence makes it clear that the user is a critical element: teaching and learning needs are easily overlooked in a technical implementation of new technologies. Minor technical issues can become major barriers to progress in lessons and unless the user is resilient and digitally literate these barriers can easily put people off using technology as a tool for teaching and learning.

What has emerged from this knowledge is the intention to make valuable adjustments to the system and a potentially new curriculum approach.

The fourth area of interest focuses on the emergent lessons for other learning establishments as well as the company suppliers of digital technology. It is too early to establish measures but there are key trends emerging.

Gaia has learnt some invaluable lessons from the generous involvement of the SMT, staff and students that will be helpful in advising other schools. One of the key lessons is to

investigate the log on procedures from the perspective of the student and staff users. Single -sign on is an essential component of ensuring that students can use an increasing variety of on-line services. Gaia will also be able to show the value of professional development and the need for a timetable and time for staff that makes this possible.

The SMT must be applauded for undertaking a research project to help them to make the most of their financial investment in the digital system as well as their investment in their staff. Much has already been learnt that will help in setting up the next stage.

Background

The teachers at St. Philip Howard Catholic Voluntary Academy aim to create exciting working environment where students can grow and develop, build an enriching love of learning and a spiritual outlook that they will carry with them through life.

Whilst the school itself has a long history in Glossop, it only became an 'Academy' during the Summer of 2015. Building on the strong spiritual and moral framework that has helped make the school so popular over the years, the new academy continues to draw on the invaluable guiding hand that The Catholic Diocese of Nottingham provides.

Their newly awarded academy status now offers them the invaluable opportunity to target budgets and develop their curriculum so that the school mirrors the needs and aspirations of the students, ensuring they each achieve their full personal potential.

Substantial across-the-board investment is also allowing the Academy to significantly improve facilities, helping ensure that St. Philip Howard, its students and staff can look forward to a bright and successful future.

An industry, education, research partnership

The partnership was composed of two academic researchers, six co-researchers from the teaching profession. The education programme leader from Gaia was included as a co-researcher in order to draw on company experience, as well as to give to the company an opportunity for in-depth learning based on Rose Luckin's Golden Triangle of Evidence-Based Produce Design (Luckin, 2016) (Figure 1):
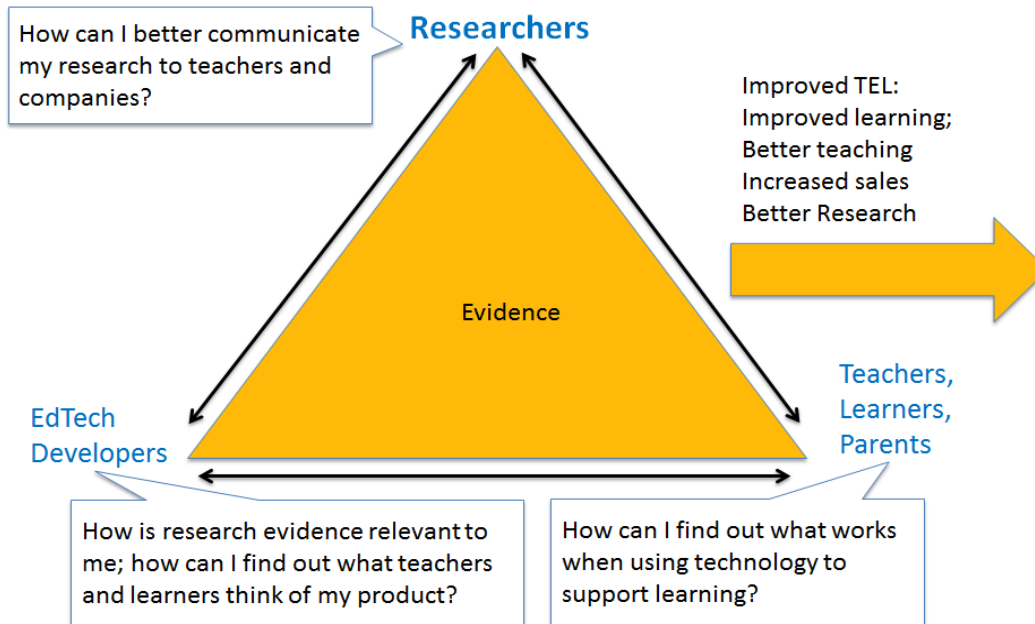
The Golden Triangle

Figure 1: The Golden Triangle of Collaborative Evidence-based Product Design (Luckin, 2016).

The involvement of the teachers as co-researchers meant that they have all been invited to comment on the data as means of increasing knowledge sharing.

St Philip Howard Academy governors and senior management team decided to invest substantially in an effective IT infrastructure throughout the school. This initiative was seen as an important element in ensuring that each student achieved full potential.

At the close of the tendering process in 2015 St Philip Howard Academy chose Gaia Technologies as their new Managed Service provider. The renewal of the Academy's infrastructure was completed in Summer 2015: Gaia supports with on-site engineering and training services.

In general, the Academy recognized that ICT had not been well utilized in the past and this was a direct result of the unreliable infrastructure. Once this had been addressed the need was then identified to demonstrate possibilities, before driving the wider engagement of staff.

One of the reasons for choosing Gaia was that the company offered a developing programme of practice based professional learning and student engagement support that

would ensure that the investment achieved results. The academy wished to use the additional Continuing Professional Development Service (CPD) service to work on very specific aspects related to their priorities.

This programme was supported by their associates, the MirandaNet Fellowship[2] based at De Montfort University. Established in 1992 this is a professional organisation of educators who specialise in innovation in teaching and learning. Fellows work alongside teachers, students and technology innovators helping the participants to identify the successes and challenges as they modify their plans for the future. All the participants contribute to a practice based research report and they are also eligible for an award if the web-publish their achievements and advice to guide other teachers.

Management of change

Unlike many of the companies who specialize in installing digital systems, Gaia's approach always starts with teaching and learning. They are committed to providing teachers with access to reliable and intuitive technology which will help them deliver exciting and relevant learning experiences and lessons. They pragmatically support use of technology to better deliver that which is proven to work in improving progress and raising standards. However, Gaia will also help innovate so that young people experience learning activities which will best prepare them for life and work digital world. Finally, Gaia staff are working at the interface of pedagogy and technology to help educators transform learning and teaching.

The Gaia team want to help students learn more effectively:
- through access to experts and as critical users of digital information
- by working together and learning collaboratively
- by creating and being creative with digital media
- through enquiry, research and exploration
- by practicing and applying skills in interesting contexts
- by receiving feedback through purposeful assessment in, around and beyond school.

At the heart of this approach lies the commitment to a **developmental partnership** that accords well with the Luckin Golden Triangle. As education technologists they seek to help teachers blend their pedagogic and subject knowledge with insight into how ICT can enhance and improve learning. The process is seen as a development journey - identifying when and how ICT adds value and makes a difference. At the core of this professional development offer is commitment to improving the digital literacy of staff and students, not only to improve teaching and learning but also to ensure that young people are prepared for life in the knowledge and digital economies. This involves doing some things

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[2] Mirandanet.ac.uk

better through effective use of ICT. It also involves doing things differently - innovating with advanced technologies and recognising that ICT is driving change in the way that people learn and work.

In this spirit Gaia Technologies, Head of Education Transformation, Bernard Dady and the Senior Management Team (SMT) of Saint Philip Howard intended this project design to inform future decisions about how to develop innovatory practices in the school to assist in raising the skills of teachers and promoting student achievement.

The Gaia consultancy support was designed to:

- help the Academy make sense of the tools that can be used to construct the virtual workplace, especially the relationship between the My Learning UK VLE, Office 365 and Google Apps for Education;
- explore how the newly available technology might be applied to engage reluctant readers and writers and impact upon writing standards;
- provide support for an initial cross-curricular innovation project, using green screen video techniques and 3D technology during a transition week for Y6 pupils.

A literacy intervention was agreed based on the Big Writing[3] approach, developed by Ros Wilson. In reality we adopted some key principles over a very short timescale and it is commended that the Academy investigates this approach to developing writing skills further as it is more likely to impact upon standards than an ICT intervention alone.

We aimed to test the value of digital technologies in this curriculum area, as well as trialing various software and services. The technology and software being used was being tested for the first time within the Academy, and this research would reveal the kind of issues that teachers would face and which would present barriers to subsequent use of ICT as a tool for teaching and learning.

Bernard suggested that the digital element could be introduced through trials of:

- Write Online (talking word processor and word bank)
- OneNote in Office 365 (as a digital scrap book)
- Word
- The Windows Snipping tool
- Google Apps for Education (GAFE)
- Google classroom
- QWrite on the interactive projector

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[3] http://bigwriting.co.uk/what-is-big-writing/

- The My Learning UK VLE

In part this experiment was to demonstrate use, in part to test applicability to the group and in part to identify issues with first application in the new ICT environment.

The literacy project was linked with a consultancy meeting to explore direction of travel in relation to implementing the virtual workspace and the relative uses of the My Learning UK VLE, Office 365 and Google Apps for Education. Gaia produced a report on this conversation with items for consideration going forward.

At the same time, Nicola Dewey the ICT leader, was managing the introduction of the new platform, Learning UK VLE (appendix 3) and was also keen on using GAFE, especially Google Classroom.

Working with these tools, drawn from a variety of Cloud services and installed software, required strategy and effective evaluation. In part the literacy project informed the wider discussion and has provided impetus to consider issues for both teachers and students of the VLE and associated Cloud services. An initial consultancy report was produced by Bernard to inform on-going discussion. This has been picked up with My Learning UK who are actually addressing some of the shortcomings identified through this discussion.

Literacy intervention

One of the issues that the senior management team had identified was the need to develop better literacy amongst the students who were struggling to reach basic standards. So Bernard Dady, Head of Education Transformation at Gaia, agreed with SPH senior managers that a pilot of the new school-wide systems should begin with a literacy project directed at pupils who were disengaged or who had difficulties with reading and writing.

Bernard suggested that this project might aim to increase the students' digital literacy skills as well as their traditional writing skills. This literacy angle was rooted in the Big Writing (Appendix 1) precepts developed by Ros Wilson. All the technical terms for writing came from this well-known literacy approach that emerged as the most effective approach from Bernard's research.

Students who feel that they are failing in writing tend to see any project in literacy lessons as a chore, so Bernard focused upon exploring the innovative use of technology to inspire year 7 students to write. The Academy selected a small group of twelve of students (mixed gender) for whom writing is a challenge and developed a six-week programme with the following aims:

- to see if the students would be more motivated to write and produce better quality writing when using ICT;
- to test different software and see which works to effect in this context;
- to identify the ICT trip wires that might prevent staff and students making use of ICT as a tool for teaching & learning.

In advance of the six two-hour lessons, the students were asked to produce some writing by hand, in order to provide a baseline for comparison with final output, which is the digital text produced as part of the process of creating a web site.

Bernard introduced the six -week course by letting the students explore development websites. Initially this was to be focused on development of pages about superheroes but as the project unfolded the focus was loosened and the students ultimately created taster websites, based either on superheroes or their own interests. He also taught them a number of skills relating to building web sites in Google sites, including use of frames and tables, uploading images and creating hyperlinks. He involved them in critique of existing websites.

The Big Writing principles were explained and discussed at the outset. These were revisited throughout the sequence of six lessons and formed the criteria for self-evaluation of the writing produced. Then Bernard explained that web publishing did not just require accuracy with language but also the writing needed to be powerful and targeted at a specified audience.

There were several factors he asked the students to keep in mind:

- using WOW words to gain attention rather than words that were boring;
- making use of adjectives;
- adding more descriptive detail;
- employing different sentence openers;
- and, making use of connective words.

Of course, he also reminded them to edit their text in terms of correctness.

To enliven discussion of spelling and punctuation Word On-line was used in a whole class discussion. The pupils draft text was entered into the software and a 'digital robot' read the students work back to them exactly as it was punctuated and written. Students were quickly able to identify the adjustments required for the robotic voice to read sentences correctly. This talking word processor was effective in gaining attention and demonstrating the importance of spelling and punctuation for the reader.

Originally, the focus was to be production of a web site on superheroes. However, it soon became apparent that the girls, in particular, were not motivated by the topic so Bernard adjusted the output to be a compendium of web pages reflecting the interests of each individual.

At the core of this project was the notion that encouraging the students to publish on line gave them significant power, but this would not be beneficial if their actual writing did not aim at publication standard. So in order to help the twelve students in Y7 to improve their writing and to develop skills for judging the work each student was invited to design a web site under the original theme of Superheroes or another subject of their choice. Google Sites was chosen as a tool for web publishing as this was judged to be a simple, freely available and intuitive tool. Furthermore, it was a tool that students could continue to use outside school using their GAFE accounts. The end product was potentially publication of the pupils' websites gaining them a World Ecitizens[4] certificate because their publication is available to children world-wide.

Questions

This practice-based research study about literacy was framed by three main questions based on the aims:

- How should the whole school system be optimised to encourage use in all subjects?
- Which software packages are effective in the literacy context?
- What are the digital trip-wires that prevent staff and students making use of ICT as a tool for teaching and learning?
- Are students more motivated to produce better quality writing when using digital tools than when they are handwriting?

However, in terms of the investment the school had made into the seamless integration of learning technologies in the classroom some other questions, drawn from the framework (2002), were posed in order to identify how the lessons from the project were impacted on the practice of:

- students;
- staff;
- senior leaders;
- the ICT services partner.

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[4] www.worldecitizens.org.uk

The questions that were devised to show evidence of management of change in the first year were:

- How has pupil engagement and achievement changed?
- At what stage is staff engagement, skill improvement and curriculum adjustment?
- How has school policy changed?
- What advice emerges for other learning establishments and company suppliers of digital technology?

(Davis, Preston and Sahin 2009 a & b)

These questions should be revisited each year for three years which is the average time that it taken by a community to embed change.

Methodology

This is a practice based study in which teachers, researchers and developers work together in reflecting on the introduction of innovation.

Firstly, a baseline needs analysis devised by Gaia was undertaken during an early meeting which followed the initial phase of Go-Live training in September 2015. This was intended to establish the teachers' understanding of innovative technologies and set the learning context.

In terms of management change the IT leaders in the school, key teachers, students and Gaia staff were interviewed as co-researchers in order to judge how much the intervention was impacting.

In terms of literacy, base line evidence about writing quality was collected at the start of the project in terms of handwritten pieces to be compared by co-researchers with the impact of the writing and visuals on their web sites. In addition, the students were interviewed about what they had learnt and whether better quality had been achieved. The SEN coordinator and the deputy head who had been involved were also asked to comment.

The researcher has also drawn on Bernard's journal and observations as the teacher; the product of the interviews; the baseline staff survey; the website writing; and a comparison of the students' work at the beginning and the end of the project. Although this is a small sample the findings will be written up to assist other schools that might wish to try a Literacy intervention.

Findings

What follows is a collation of the evidence about learning from interviews with the SMT member and students who were involved in this literacy project.

Student focus groups

The twelve students were interviewed in two groups and their opinions about the literacy course they had completed are reported here starting with their assessment of their prowess using digital technologies.

The parents of half the group were considered to be computer literate but the parents of two students had never used a computer. All the twelve students had Smartphones that they brought into the school but they were not allowed to use them in lessons, ten had a laptop or desktop at home. Ten of the twelve felt competent in the use of digital technologies but none had produced their own website before.

The girls explained that they did not like the theme of Superheroes and appreciated being permitted to choose their own subjects. Some of the boys had also followed. Once motivated by the topic the students enjoyed creating the websites and eliciting opinions from their fellow students. They described their websites which included topics such as: superheroes; horror movies; Pushy and the Cat; horse riding; tiger conservation, dance and keeping chickens

In a more focused discussion about the initiative and what they had learnt the students thought that this Big Writing formula for developing their writing was very supportive. In this project the 'VCOP' approach was used:

- **V**ocabulary - Wow Words to catch the reader's attention;
- **C**onnectives – words to join and extend sentences, which helps writing to flow;
- **O**peners – interesting words for opening sentences; and
- **P**unctuation

In reality this was merely a short term emphasis within the teaching rather than full application of the Big Writing approach which needs to be fully developed and sustained if it is to have the desired impact. However, it did provide a focus for review during the review process.

Bernard helped the students to see the value of punctuation because he ran the students' writing through Write On-Line to let the students see how a mechanical reader would approach their sentences. The word processing robot voice was a key success. It had an impact on their understanding of the purpose of punctuation. One student commented, "English is more understandable when we use computers to edit writing".

Students liked the fact that the robot could teach them without emotional judgement. They also found the spelling checker valuable in making sure their publication was technically accurate.

In the future they intended to use more 'Wow' and connection words. They would edit their writing more carefully. They also realised that they could now publish not just a website but a book using the same methods.

One student linked her pleasure in this kind of learning to the fact that she had been told that she is a kinesthetic learner, thus she enjoyed the physical engagement with the technology. Students agreed that they had been learning to solve problems and about how to develop their communication skills words better. The opportunity to be creative and develop their own content and thoughts had been motivating. They thought that reading internet pages improved their reading skills because it was interesting content and in small doses. They had enjoyed working actively and collaboratively with the teacher's help in this practical project and thought that generally behaviour was improved in undertaking this project work. They had enjoyed staying on one topic for six weeks and, specifically, they thought that bringing in outside tutors on a specialist topic was enjoyable. They voted for more of this kind of active project.

Before the project they had not known about copyright, but now felt that they now knew how to check about copyright and respect other authors' rights.

The students had enjoyed visits from the other members of staff who were engaged on this training programme. They preferred this opportunity to talk to the teachers informally and learn from this than having a teacher at the front of the class. The improved sense of a relationship mattered to them and they felt the teachers were interested in their websites. Although most students increased their computer skills, as well as their pleasure in learning, one boy remained negative throughout. He explained this as a concern about straining his eyes, a conviction which seemed to emanate from strongly expressed parental concerns.

Overall the students welcomed the opportunity to publish their finished website internationally with World Ecitizens[5] and gain a certificate. They concluded, "We think that we are writing better. The teachers can read it now".

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[5] www.worldecitizens.net

Michael Kays has been a deputy for three years with special responsibility for the Information Technology in the school. His degree was PE and IT and he had already built his own website. "It will be very good for me," he said, "to learn some techniques for helping teachers and students in web design".

As such the experimental literacy intervention, for pupils who are slow learners or who have learning challenges was particularly pertinent. He had spent six weeks in the planning with his colleagues.

He was particularly interested in the subject of literacy incorporating digital literacy rather than just the English language. He thought this approach had particular relevance to the students' daily lives. These days they did not just need to be articulate but able to manipulate the power of communication combining pictures, text, sound and even animation. A facility with words was not enough these days. Teaching multimodal literacy was now a school responsibility he thought. He expected to see evidence of the power of teaching about the fusion between words and pictures shown up in this class of less able pupils. He felt that this was an important addition to the teaching of writing and numbers that tends to dominate. Hard evidence from the research on how to improve literacy would also be valuable.

He had supported this literacy initiative with the intention of providing an example of what can be done to motivate the less able student. Although Bernard, from Gaia, taught all the lessons, other teachers and teaching assistants were invited to drop in and learn. In particular, this method of professional development was intended to give confidence to teachers whose ability in digital technologies was not high.

These staff would have to be versatile to take on this project but would be motivated by seeing the impact on the pupils. The hope was that they would be motivated in turn to master the software they needed to know perhaps starting with the robot word processing voice.

For Michael the attraction of this pilot was to understand the benefits and the challenges. He thought this might lead to a wider topic on 'design'. The risks that were envisaged at the start were mainly technical. But he thought for the curriculum this website design approach, using Google Sites, would sit well in an IT lesson as opposed to Computer Science which is being brought in. The IT lessons will be one hour a fortnight to learn mainly about the Microsoft Office package in preparation for work.

Michael said that there were some surprising aspects to the implementation, "The children took to the work with relative ease: researching websites and using the snipping tool. They reacted differently. Lewis was the one who remained negative. He seemed to have a real prejudice about the use of computers. The rest enjoyed it and we had a real breakthrough with Charlie who normally says that she hates school. However, she was allowed to build a website about farming, which she loves, and now she plans to continue after the project. It was clear that Bernard had found a way to motivate her. "As a result I think we should do more of following the pupils' interest, especially those who are disengaged…. It was clear", said Michael, "that Bernard had found his way into triggering her learning. I now agree that they should create websites on a subject of their own choice".

"In PE", Michael said, "I would find a way to engage a student whereas I had not thought to do this in these lessons because I had seen the curriculum as too restrictive. However, I can see from this example that teachers can really communicate the content in any way they find effective. It seems to me that the pendulum as moved too far on freedom to choose how to teach".

Michael went on to explain that he had learnt from this project to be more open minded about the topics that could be chosen because the choice of topic did not affect the required outcomes. He felt he had also learnt more about copyright issues from this publication project and was pleased that the children would know about this when they set up websites at home.

He had also realised that many of the service registration problems could have been avoided if he had explored what was possible from the students' point of view. He had not been blocked himself because he had all the permissions.

His advice to teachers just starting this kind of literacy initiative would be, "Relax. Do not worry too much about the mistakes but try to give the children themselves editing confidence." He thought that the children should be encouraged to discuss constructive ways of editing that they did collaboratively ahead of being marked by a teacher. "As a profession I think teachers are too strung up about mistakes too early. Let the activity flow and they may learn to self-correct". He thought a 6 weeks project for a full 2 hours a week was good for the pupils, "This gave the students time to get into some deeper stuff, as they would say."

For the future Michael has plans to increase the reach of this project. The Academy was planning to continue this activity in the following year on a wider scale by blocking the

timetable to make the right learning time. They were considering other software, like Word, and intended to develop some lesson notes on copyright now that they were alerted to the issues. Michael knew that time needed to be made for the teachers to learn new software tools but he felt sure that they would be motivated by the results.

Discussion

In this discussion the four main questions about the intervention are answered.

The first question was about the success of this venture in identifying challenges in optimizing the whole school system so that teachers and students were able to build this into their activities seamlessly.

In this context the staff in charge of the technology implementation agreed that the setting up stage had not been sufficiently driven by the learning strategy and educational requirements. Close working between the educator and the on-site engineer is important so that the educational purpose is clarified and appropriate installation or service set up takes place in advance of first use. A key observation was that overall insufficient time had been given to planning this interface before the literacy project started.

As the educator who also had most knowledge about the power of digital technologies, Bernard (Gaia) had a series of observations to make that would help the senior management team to make use of the potential of their investment since the pilot was implementing freshly adopted technology. Bernard used the six-week pilot to look at what was viable in the overall system from the students' and the teachers' point of view.

He noted the technical challenges that had emerged across the system. In particular, he was working with a partial implementation of workspace solution when the collaborative online services were not yet deployed. Although this was a pilot he thought that more advance checking would have been useful because the students had problems registering for some services before they could even start work in some lessons.

The second question was more detailed about which software packages were effective in the literacy context. In this intervention a range of software was tested that would also have uses throughout the school. Some of these applications proved to be more effective than others for the pupils:

- **Write Online** the talking word processor and word bank was the most successful application in terms of learning the value of punctuation:

- **Word**: unexpected problems with scrolling and saving occurred when using Word-Online within the VLE: and students are confused, not knowing, as the user, if you they were working in the on-line or installed version of Word. Additionally they are unclear as to where their work would be saved – in OneDrive, on the network drive or in the VLE storage. Such complexities, presented by the advent of Cloud computing, are issues for many users, including adults.
- **OneNote in Office 365** (as a digital - scrap book): a session focusing upon structuring research with OneNote failed due to installation and technical issues. These were linked to an incomplete adoption of Office 365 and partial installation of Office. These issues were resolved after the event and considerable progress has been made with the web authoring using Google Sites. OneNote Class Notebook is a powerful tool in the Office 365 suite and we would hope to make better use of it in the future once full adoption of O365 is complete.
- **Google Apps for Education(GAFE)/Google classroom**: For pupils in this ability range the Google tools were found to be both intuitive and easy to use. Learning quickly accelerated once working in Google Apps for Education (GAFE). The pilot included the deployment of instruction through Google Classroom and the use of Forms in order to survey students at the end of the project. The surveys were completed with minimum tuition for the students. One key bit of learning for students was the difference between inserting media on a web page and inserting in a document. It took time for several students to grasp the concept of uploading, so that the image was stored in the sites media library before use on a page.
- **QWrite** is the interactive presentation software provided with the BenQ interactive projector. This was used for a brainstorming session, so that students' ideas could be immediately captured using the display technology.
- **The Windows Snipping Tool** was used to capture content from web sites and add into student notes. Originally, the plan was to use OneNote Web Clipper but given the issues with the incomplete deployment and absence of student O365 accounts at the time, the Snipping Tool was a more than adequate alternative. Students learned how to capture digital content for later use, whilst at the same time entering into conversation about copyright.
- **The MY Learning VLE** was introduced and students shown how they could store documents and edit in Word on-line using the platform.

The third question explores whether students more motivated to produce better quality writing when using digital tools than when they are handwriting. Bernard acknowledged that challenges were anticipated in the planning because he had instigated a six-week project with a class of students who he did not know in a school that was unfamiliar. Nevertheless, the group were keen to be the subjects of a pilot and as a result they were very responsive, tolerant of the 'experimental nature of lessons' and instances of failure. Behaviour was good throughout and after six weeks the process of working together through a creative process helped forge a relationship with the class.

To the students the pedagogical model was new: six weeks in two-hour blocks where they worked individually on their own projects. This project-based approach to developing skills and refining skills seemed to be popular. The two-hour lessons allowed the pupils to aim at a quality product. Indeed, they needed the time because they were slow with reading, writing and use of digital technologies. The visual clues provided by continuous use of technology really helped the students throughout the project. It helped keep attention during presentation and provided structure during the creative process: a common interface for helping the teacher teach and the pupil learn.

Bernard observed that the students were more self-assured and relaxed as the weeks progressed. They were also more empowered to contribute. Not only were their observations improving but they also began to believe their contribution mattered when they were working collaboratively - peer to peer, as well as answering the teacher in the whole class setting.

Since this pilot was one in which the teacher was new and the mode of working unfamiliar, the gains were clearly made because the students were willing to learn. However, the time was short and the variables plentiful, so a measurement of a substantive improvement in literacy was not expected in this first pilot.

With hindsight a more diligent assessment of the baseline and web writing should have been undertaken. Examination of the students' baseline writing showed that even within a group of 12 there was considerable variation in the quality of handwriting and, for some students, considerable difficulty in making a good first draft, without ruining the visual appearance of their script with crossing out and amendments. It is these students who probably derived most benefit from writing digitally, where the editing process has no visual impact upon the draft and final text. Some students wrote quite a lot, nearly two A4 pages, during the baseline lesson but others struggled with half a side. In nearly all cases the writing was laid down as it came out of the student's mind and rarely exhibited any structure or research.

The students who wrote a substantive amount by hand did not write as much when working on the web site. However, the nature of the writing process was changed with emphasis on the relationship with images, layout, editing and research. Overall, a process that was intellectually more demanding than free writing by hand.

On the web sites students still made elementary mistakes with spelling and punctuation. However, it was becoming evident that they were developing increased awareness of the mistakes that they were commonly making. Overall, the quality of the written work is not

substantially different from the baseline pieces and volume was lower. This was in part due to slowness in typing and parallel focus on the ICT processes. Nevertheless, for the students an impression has been conveyed that the website writing is an improvement on their initial hand written work because it looks better and has been subject to editing. Additionally, they have learned about writing for audience in a multi-media format. Generally, the finished pieces were more readily identifiable as being non-fiction and informational.

Bernard reflected, "In the six weeks we might judge that we succeeded in getting the students to look at the writing process differently and to become more self-aware about quality and techniques for improving that quality."

Here follows an example of the baseline writing exercise from Daisy and her text as featured on her web site. (Figure 1)

Figure 1. Daisy's first handwritten example
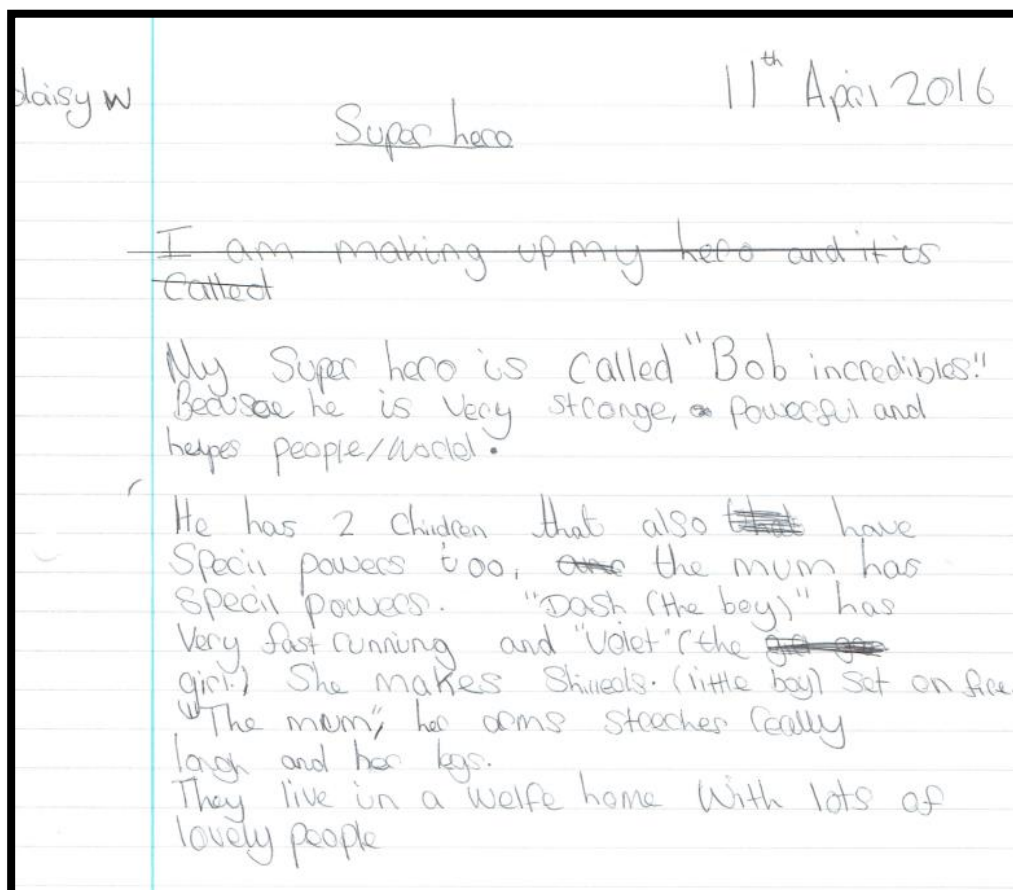
On her website page written at the end of the course (Figure 2), Daisy still uses short sentence structures and has punctuation errors, but her writing for the site on 'horror movies' is more extensive.

Figure 2. Daisy's writing for a public page on the web.

Daisy – 3 paragraphs each reviewing a horror movie. Largely unaided.

Finders keepers is a horror movie with a little girl. she moves house and she finds this evil doll. When she gets possessed, the doll makes her do bad things. They try and get there little girl back but they don't know how. So this mysterious woman tells them what to do. Sadly they do what she says. People died to get this little girl back. She becomes more aggressive. They needed to get the doll that she was always with. As it was the most challenging thing in the world, They needed to rip the eyes out of this horrible doll.

The woman in black is horror movie about a boy that is adopted and he is put in a group with more children. As he does not speak to anyone, he is a strange character. They move to the scary house. He does not talk still. He sees things but no one sees them but him. One night people started noticing that the boy was being really mean. Everything went pear shaped. When the boy got possessed, the woman in black was making him doing horrible things and he did not know what he was doing. But the boy did not die!
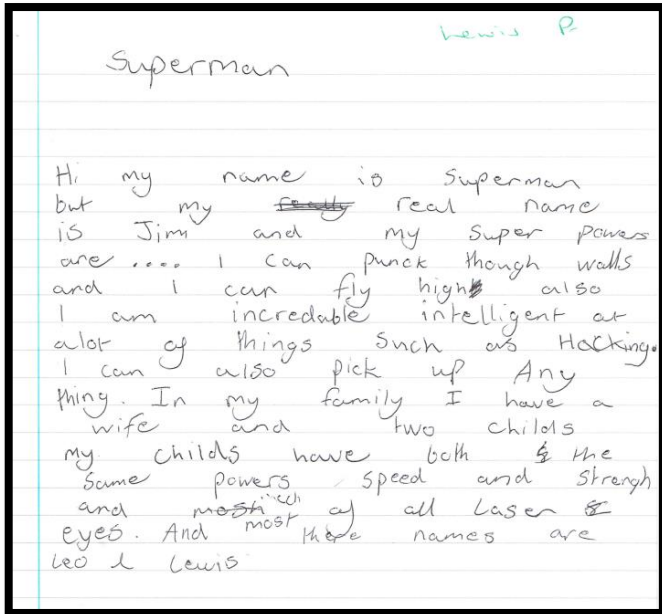
Figure 3. Lewis's first handwritten description

Lewis changed his approach from writing in the first person about his superhero, Deadpool, (Figure 3) to rewriting a piece based on his internet research. A reluctant reader and writer, Lewis required some support in learning that he could not just cut and paste text from an existing web site. With some help he took a piece on Deadpool and translated it into his own words, making a significantly more informed piece of factual writing based upon his reading or the original text (Figure 4).

Lewis writing about superhero Deadpool (adapted with support from text on established web site)

KNOWN POWERS:

dead pool has extraordinary superhuman healing factor, that allow him to recreation himself so he can not die, however he has weapons such as blades and guns, also he can teleport when he is in danger which is good because he can sneak up behind the enemy and take them out .
wade Wilson gave himself the name dead pool. deadpool joined a project weapon x. the extraordinary healing factor allow him to cure his cancer ,the treatment not only advanced his cancer but the healing

Wade Wilson gave himself the name Deadpool. He joined the Weapon-X project to obtain the healing factor in an effort to cure his cancer; the treatment not only advanced his cancer but the healing factor meant he wouldn't test subjects were tortured and experimented on, the "Dead Pool" was a betting pool run between the inmates. Wade was given survival odds of 1000 to 1. He beat the odds.

 Wade Wilson's childhood hero was Captain America. Because of this, and due to a bond formed through them both being Government experiments, Steve Rogers is one of the only Marvel characters to treat Dead pool with respect.

 Many fans like the character for his sharp mouth and his habit of breaking the fourth wall to talk to the audience, but there is much more to the costumed crimefighter also known as Wade Wilson.

Figure 4. Lewis's web page

These examples show that the pupils have understood the potential of editing on computers: they liked the fact that there are no crossings out and it is less time consuming to edit in a digital medium. Details like capitals are sometimes missing from the writing, although they have tried to follow the rules and everyone has produced something of quality, even though there is a considerable journey to achieve success in in applying VCOP successfully in their writing. Overall, pupils had made effort to extend their sentence length using connectives. This improved flow for the reader. They were much more adept at suggesting ways of doing this when working as a class using the talking word processor to analyse sentences.

They managed Google Sites well and learnt about the construction of a webpages and web sites. As a class, they developed good insight into what makes a good website and could be articulate in their explanations. Most of all they now know that they were writing for an audience and were willing to expend some energy on the task because others could read what they had written. They were more interested working together and sharing learning.

In this context displaying the compendium of websites motivated the staff, who saw that the students had performed at a higher level and with more concentration than might have been expected from this group.

Fourthly, this pilot provided a valuable method of identifying the digital trip-wires that prevent staff and students making use of ICT as a tool for teaching and learning.

Although these learners rose to the occasion, the school should be aware that pupils' learning is easily interrupted by minor misunderstandings of the process: for example, when a Word document was opened in the VLE it opened in a frame on the page, so that the student had two scroll bars. This confused several of the students.

There were some other very practical issues that disrupted or hindered lesson flow in the literacy project that would relate to the use of any digital technologies in the classrooms. Some of these related to the visiting teacher using the guest network and a private device. However, others were basics such as: missing HDMI cables in the classroom so that teacher devices could not connect to the interactive projector, access to interactive pens, different log in details for access to the network, GAFE and the VLE. We also suffered fire alarm disruption in one of the lessons.

The time students, in this ability range, spent logging in was inordinately high. Fortunately, the two-hour session reduced the disruptive effect of this. The blocking of

sites by the internet filtering was also irritating for both teacher and student. Many superhero sites were blocked because of game or chat association. This restricted the research phase of the project. More local control of access to web sites would be desirable. Beyond that teachers have to predict the sites to be visited well in advance and request unblocking.

It is not only pupils, but also teachers, who find these problems would be a sufficient barrier to prevent further attempts to use the technology. The subsequent green screen project threw up even more major issues linked to infrastructure and device/software compatibility. The key lesson for Gaia in this is to for the new installations to be road tests beyond the user acceptance testing carried out by engineers. It educational technologists working alongside teachers will reveal more barriers to use and refinements required of the set up.

Conclusions

This small intervention has been valuable in identifying issues for the school and for Gaia about how the whole school system can be optimised to make full use of the investment in technology. Here well-established research questions were adapted from the Guskey framework (2002) to ensure that the intervention is on track for year two.

Firstly, a tribute must be paid to the students who were such an important element of this pilot. The group were responsive and tolerant of the experimental nature of lessons and instances of failure. Students were enthusiastically talking about the project in their breaks amongst each other and to the staff. They were motivated by knowing that this was an experiment although the intervention did not proceed perfectly they remained engaged and there is evidence of achievement. Positivity about making suggestions and helping teachers was noteworthy. In particular, they appreciated this more informal approach to learning where they had six weeks to develop a product that was published on the web and were empowered by commenting on the websites of their fellow pupils. Behaviour was good throughout and after six weeks the process of working together through a creative process helped forge a relationship with the class. The engagement of this particular group of students and the quality of their websites indicates real achievement.

Unexpected outcomes were achieved by allowing the students to choose their own themes. For one pupil this approach produced an enthusiasm for learning that she had not displayed before. This was seen as a result of allowing her to learn within a subject context of her own choice. As a result of their experience these young people could be Digital Leaders helping both teachers and students in year two.

The second research consideration has been staff involvement. Teachers who had had some involvement spoke of their enjoyment in the project and wished that teachers and teaching assistants had been able to see more. Overall this has created an atmosphere where teachers can feel free to explore literacy in new ways rather than a box ticking exercise to prove literacy development.

However, some of the professional advantages were lost because teachers and teaching assistants were not timetabled to co-deliver the lessons across the full two hours for the six weeks and thus learn more 'on the job'. To learn more effectively the teachers needed to be there most of the time. Other demands on teachers' time and timetable issues have prevented them from engaging in this project. Now that the value of the project for the students has been established and changes will be made to make the technology more accessible overall more engagement may be possible in the second year. Timetables would need adjusting to ensure that enough staff learnt from this professional development opportunity the next time.

The third measure of change is forthcoming alterations to school policy. Although the intervention is in its early stages the SMT have seen the potential and identified how they can best play a role. The pilot showed that the need to train educationalists to look closely at what technologies can promote is paramount because the staff must take ownership in order to gain good results.

In terms of technology the intervention evidence makes it clear that the user is a critical element: teaching and learning needs are easily overlooked in a technical implementation of new technologies. Minor technical issues can become major barriers to progress in lessons and unless the user is resilient and digitally literate these barriers can easily put people off using technology as a tool for teaching and learning.

What has emerged from this knowledge is the intention to make valuable adjustments to the system and a potentially new curriculum approach. In terms of *curriculum policy* this project will be included under Information Technology (IT) and literacy. Students already have IT for an hour a fortnight so blending in the literacy hour and running these together will be the best path. Further planning might include numeracy because there is potential maths in designing a website focusing on elements of the task like font and pixel sizes and estimation activity.

The fourth area of interest focuses on the emergent lessons for other learning establishments as well as the company suppliers of digital technology. It is too early to establish measures but there are key trends emerging.

Gaia has learnt some invaluable lessons from the generous involvement of the SMT, staff and students that will be helpful in advising other schools. One of the key lessons is to investigate the log on procedures from the perspective of the student and staff users. Single -sign on is an essential component of ensuring that students can use an increasing variety of on-line services. Gaia will also be able to show the value of professional development and the need for a timetable and time for staff that makes this possible.

The SMT must be applauded for undertaking a research project to help them to make the most of their financial investment in the digital system as well as their investment in their staff. Much has already been learnt that will help in setting up the next stage.

The future

From this six week pilot a curriculum has been devised for discussion with the staff that covers the elements of digital literacy as well as literacy. In building a revised curriculum plan, designed to enhance student's writing using ICT, we should develop the various elements but not necessarily on an intensive basis through one project. An approach could consist of:

1. Learning to self-evaluate and edit using word processors.
   a. Adopt use of *Write On-line* and make use of the talking word processor, predictive text and word banks to help students develop writing, especially improvement with sentence openers, Wow Words, connectives and punctuation.
   b. Develop these skills using Word or Google Docs, with the spell and grammar checkers
   c. Examine translation of skills into unaided hand written application
2. Learning to structure research and collaborate using OneNote
   a. Use *Class Notebooks in Office 365* to structure research into a topic, share and evaluate the content, get students to start translating cut & paste text into their own words, build up collaboratively produced extended writing
   b. Use OneNote as a writing frame
   c. Combine use of words and pictures
3. Writing for audience using *Google Sites* to build a web site
   a. Teach how to create a site
   b. Use research techniques to find content
   c. Individual pupil sites developed using a common template
   d. Link together as a compendium using the teacher page
   e. Present to audience at end of project

The staff discussion will range widely based, on their knowledge of the pilot, and already there have been suggestions to build in numeracy elements. This requires further discussion as to how technology can help deliver the required content and also how

pedagogy needs to change in order to fully exploit the potential of the new technology. Furthermore, attention needs to be paid to the wider picture i.e. the development of a vision for educational ICT and implementation of strategies, particularly around use of the interactive projectors, educational software, the MY Learning UK VLE, Office 365 and Google Apps as core tools for teachers and learners.

Appendices

Appendix 1: What is Big Writing?

From: *http://bigwriting.co.uk/what-is-big-writing/*

Big Writing provides a school with a definitive, comprehensive model that ensures both teachers and children know what they can and can't do, identifying any gaps to accurately inform the next steps in teaching and learning. Ros Wilson's Big Writing messages have become common place throughout the UK with V.C.O.P displays and punctuation pyramids forming the foundation of many classrooms.

Big Writing is an approach to teaching writing and raising writing standards that focuses on:

- The importance of **TALK and oral rehearsal**
- **Accurate basic skills** – spelling, punctuation, grammar and handwriting.
- Regular and **meaningful assessment** and target setting.
- **High expectations** for all pupils.
- Giving writing a **purpose** and making it fun!

How Does **Big Writing** Work?

In Big Writing, the full range of writing skills is called the **Writer's Toolkit** and can be summarised as **'The Two WHATS and the Two HOWS':**
WHAT 1: The text type or genre to be written.
WHAT 2: The stimulus or purpose for writing.
HOW 1: Basic Skills: GHaSP.
HOW 2: 'Writing Voice'

Reference: Wilson, R (2012) Big Writing: Raising Writing Standards - A powerful and effective whole-school approach, OUP **ISBN:** 978-0-19-838893-7

Research: https://www.nfer.ac.uk/publications/OUPW01/OUPW01.pdf

Appendix 2: The Literacy Project

The lesson sequence was designed as follows:

Lesson	Learning Activities	Technology Enhancement
1. April 18th	Use of OneNote and snipping to collect an order information from web pages as part of an initial research process.

Use QWrite and the interactive projector to capture the class's thinking as to what makes a good web site. | OneNote; Snipping tool; Windows laptops (test saving and accessing files via the VLE) |

		Introduce elements to improve writing: sentence openers, connectives, Wow Words and punctuation. Practice using connectives from a pre-prepared list. Students go away and generate their wow words for a superheroes site.	QWrite; BenQ interactive projector
2.	April 25th	Choose superheroes to research. Cut and paste content from a range of web sites. Start drafting text for use on their web page. Model and redraft student sentences using a talking word processor.	Web sites; OneNote, Snipping Tool; Windows PC Write OnLine (Gaia demo license on whiteboard)
3.	May 9th	Introduction to use of Google Sites to build a web site. Test Google Classroom for teacher/student collaboration. Learn how to set up pages, use frames and tables, insert pictures and add text. Students start building a test page.	Google accounts – sites and classroom; Windows PC with IE browser.
4.	May 16th	Revision on page building and set expectations of product by session end. Web page building.	Google accounts – sites and classroom; Windows PC with IE browser.
5.	May 23rd	Review web pages produced to date and test text using the talking word processor. Demonstrated how the pages have been linked to a single compilation site through use of hyperlinks. Set improvement targets. Web page building by students. Guide and support.	Google accounts – sites and classroom; Windows PC with IE browser.
6.	June 6th	Review and presentation to conclude.	Google accounts – sites and classroom, forms;

	Group 1 – completion of web pages, discussion about what we might improve if we do this again, completion of a s simple evaluation form. Group 2 – interview by Dr. Christina Preston to explore student experience. Presentation of the pages to the class by each student.	Windows PC with IE browser. BenQ Projector

Technology Challenges and Trip Wires

Lesson 1 – Support required at outset with connection as HDMI cable was not left in room as per policy.

As student mail is not implemented then it is not possible to use the collaboration functionality of Office 365, in this case the class notebook functionality. Thus reliant on student individual notebooks.

OneNote had not been installed as part of the Office suite. Adjusted lesson to use Word and the snipping tool. This caused problems with formatting, in that students had to adjust text wrapping on images to be able to get their content ordered. We also lost the use of tabs and pages as a tool for structuring research in a digital scrapbook. Thus core purpose of lesson was adversely affected by lack of readiness on the ICT front.

Bernard used the teacher laptop which had QWrite and projector drivers installed. The use of the BenQ projector ran smoothly.
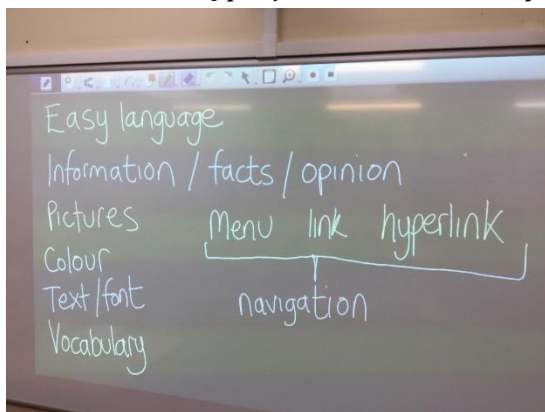
Figure 1 Student ideas captured using QWrite
Note that subsequently when using Bernard's PC the interactive drivers did not work because this PC was on Windows 10 and the drivers appear not to be compatible.

Student log-in – for this group it is a slow process. They knew network log-in details but took time to enter and some experienced problems. This could cause up to 10 minutes of disruption to learning for some students before

they could work. Meanwhile they missed instruction. Windows laptops boot speed not ideal (what to do whilst waiting – leaves space for off task behaviour).

Internet filtering blocks many useful superheroes sites due to detection of games and associated chat environments. Overly locked down internet access is very frustrating for students. Policy to drive future approach – Gaia can permission a wider range of sites by adjusting filters or specific sites.

Lesson 2 OneNote still not installed. Gaia engineer had interpreted that sticky notes were required. Thus research activity limited. Continued to use Word and tested saving and download functionality within the VLE, using student's personal storage space. Caused confusion when Word documents loaded as on-line version, with requirement for switch to desktop editing. In On-Line version students ended up with two scroll bars (one within VLE window and one within the Word document which was running in the VLE Window). Uploading and downloading documents was a slow process.

Write OnLine worked OK as a class teaching tool and students were engaged by hearing their text read out by the robot voice. It focused their attention on how they could improve the writing and highlighted mistakes. We did not use the additional features of this software, such as predictive text and word banks. *There would be merit in the Academy getting sufficient licenses for the students in the intervention groups to be able to use this tool as it would work well when used individually or in pairs to improve writing.*

Lesson 3 Once we had sorted out the log in details for Google Apps we were OK. Using multiple on-line services demonstrates the need to implement a single sign on strategy as this issue will only get bigger going forward.

Discovered that a. Classroom is not visible in GAFE whilst on the search page. You have to be within an app to see the icon b. Google block use on the guest network, assessing it as a security risk. Thus tripped up the guest presenter but would not be an issue for teachers.

Students very quickly learned how to perform basic functions of page building using Google Sites. Most instruction thereafter was about technique e.g. use of frames & tables, uploading images and inserting, hyperlinking etc.

With hindsight we should have made the students use logical names for their sites as they continued working on their test site. Also use of a standard template is advised as not all students sites run correctly on tablets and phones.

Lesson 4 Needed to create a site to anchor the student pages together. Teachers will need to use this as a template, otherwise this is a time consuming, semi-technical task. Otherwise no technical issues using Google Apps. Classroom access demonstrated successfully.

Lesson 5 No technical issues

Lessons learned: focus for developing applied use of technology across the curriculum

1. Ensure teacher connectivity to classroom interactive AV: cables and drivers
2. Access to hardware: booking system, distribution, access and delivery of student devices
3. Ensure availability of software and on-line services: installation and sign-in
4. Efficient log-on: ensure all pupils can log on quickly at lesson starts
5. Develop student ICT skills & knowledge for application and practice across the curriculum
6. Sort out storage and resource sharing strategy

Revised Curriculum Plan for Literacy

In building a revised curriculum plan designed to enhance student's writing using ICT we should develop the various elements but not necessarily on an intensive basis through one project. An approach could consist of:

4. Learning to self-evaluate and edit using word processors.
    a. Adopt use of *Write On-line* and make use of the talking word processor, predictive text and word banks to help students develop writing, especially improvement with sentence openers, Wow Words, connectives and punctuation.
    b. Develop these skills using Word or Google Docs, with the spell and grammar checkers
    c. Examine translation of skills into unaided hand written application
5. Learning to structure research and collaborate using OneNote
    a. Use *Class Notebooks in Office 365* to structure research into a topic, share and evaluate the content, get students to start translating cut & paste text into their own words, build up collaboratively produced extended writing
    b. Use OneNote as a writing frame
    c. Combine use of words and pictures
6. Writing for audience using *Google Sites* to build a web site
    a. Teach how to create a site
    b. Use research techniques to find content
    c. Individual pupil sites developed using a common template
    d. Link together as a compendium using the teacher page
    e. Present to audience at end of project

Overall the academy has three tool sets to choose from:

a) *Office 365* – needs set up, especially ability to use class notebooks in OneNote and collaboration using Office on-line
b) *My Learning VLE* – provides access to OneDrive & Google Drive. Portal to other on-line services. Need to develop single sign on to these services. The place to share access to learning resources and develop courses.

c) *Google Apps for Education*. Especially Google Classroom for digital collaboration & sharing: teacher to student. Use of Google apps for specific purposes e.g. Sites for web building, Forms for survey building.

[Write On-line](#) would need purchasing for use with the literacy intervention group and others. A 40 device license would cost £1,800.

A pilot phase working with staff and students will reveal which tools are easiest to use and whether each exclusively offers the niche functions described above.

Appendix 3: IT Infrastructure developments

Current position

In procuring ICT infrastructure and services with Gaia Technologies the Academy has sought to take steps to secure a virtual work space, through which staff and students can collaborate. The two key components of this are use of:

1. Office 365 and
2. The My Learning UK VLE platform

Use of both of these Cloud based services is at an embryonic stage and within Office 365 only limited use is being made of the full range of applications, especially for students.

The third potential element in the equations is **Google Apps for Education.** The Academy has established an account and use of this platform is being trialled in computer science. In particular Google Classroom is considered to be a more effective tool for the digital transfer of work between teachers and students than those offered within the VLE.

The fourth element to be considered is the probable increase in the volume of **on-line service and software** access by teachers and students.

Together these 4 elements:

1. Office 365
2. My Learning UK VLE
3. Google Apps for Education (GAFE) and
4. On-line service and software

form the Academy's virtual workspace through which staff and students will communicate, collaborate, access and share digital resources. Behind this lies the backup, retrieval and filtering tools put in place alongside the infrastructure solution.

All schools are engaged, to varying levels with this shift to a Cloud-based virtual workspace. At present it is not likely that schools will make a complete transition to the Cloud and thus we are in the era of hybrid solutions where network and web-based services overlap significantly.

At the heart of this transition lay a set of policy and strategy decisions. These include:

1. **Storage strategy** – what is stored where across the choice network and cloud based drives?
2. **Single sign on (SSO) –** how the user's identity is drawn from the management information system and used to facilitate sign on using a single set of credentials without repeated re-entry of those credentials every time a person accesses a new on-line service.
3. **Backup, retrieval and security** – how the Academy's requirements are met by the various services that are adopted.
4. **Safeguarding and e-safety** – what measures are in place to monitor and control use of the services in line with the Academy's acceptable use policy (AUP)?

None of this is easy to implement and takes care in planning and fore-thought. However, one thing is inevitable: users will seek out the best tools for the job and deploy use even if this means circumventing established systems. High degrees of lock down of Cloud-based services, heavy Internet filtering and prescribed software is unlikely to work as it actually mitigates against the use of ICT as a tool for teaching and learning.

SPH Academy is at the point where it has the pieces of the jigsaw laid out and the next step involves drawing up a plan as to how these all connect together. This has to be addressed strategically by school leaders and governors. Those leading the development

need to operate in a clear policy and strategic framework if their decisions are not to leave them exposed if things go wrong.

Conversation with the leader of the VLT team

On Monday June 9th Bernard Dady (Head of Education at Gaia Technologies PLC) reviewed the current position with Nicola Dewey. We discussed the scenario outlined above. Nicola has responsibility for developing use of the My Learning VLE and is also exploring how other solutions can best meet teacher and student needs. At present the team making decisions is small:

Mike Kays – policy and strategy

Nicola Dewey – VLE and IT ambassadors

Alex Rastelli – technical implementation

The **My Learning VLE** is a self-contained solution that has been designed to address many of the issues described in section 1. That said it is not perfect in every respect and better solutions and features may exist in other platforms. MLUK does have the benefit that it provides a degree of integration with both Office 365 and GAFE, in that it provides a single interface through which users can access OneDrive and Google Drive. It also handles single-sign on to a wide variety of other on-line educational services.

It carries an annual cost and therefore the Academy needs to make use of it and evidence cost benefit. In letting the a commercial VLE product handle identity and single-sign on the Academy is further embedding its long term commitment to the product.

Office 365 and GAFE are essentially free but using them as a total VLE solution can involve a considerable time cost and use can incur other charges with respect to backup, retrieval and e-safety solutions. Other on-line services will be either free for educational use or a subscription service. The latter is especially true when it involves access to on-line curriculum content.

At present the full potential of O365 and GAFE is not being realized as the Academy is in a very early stage of implementation and most of the services are not switched on for students. A key issue is whether students should have e-mail accounts. This also impinges upon the capacity to share and collaborate through Cloud based systems.

Through the discussion we started to model how an integrated virtual workspace might look.

Identity and single sign on

- The single point of truth needs to be the **Management Information System (MIS).** This is the place where up to date user records are maintained.
- In network based ICT systems the user's identity is then transferred to the **Active Directory** – this database is used to give users access and permissions on the ICT system.

- It is possible to synchronise the identity in the Active Directory with Cloud platforms such as the MLUK VLE, O365 and GAFE. In this way the user's identity is transferred from the MIS to a Cloud service provider. The Cloud identity can then be used to log in to other services. So a user enters their Microsoft or Google credentials to access another service. MLUK does this for a range of appropriate educational services.
- A problem with the methods above is that your users' identities become linked to a particular service provider. Thus if the Academy wished to break the relationship with MLUK or Microsoft all the SSO arrangements to other on-line services would be broken. You are cleverly tied in by the arrangement.
- MLUK Connect is an add-in to the MIS which creates an automatic update service so that user alterations in the MIS translate straight to the MLUK VLE.
- An alternative is to use an independent identity management provider. Identity as a Service (IDaaS) provides the Cloud identity and is independent of any other service. Thus you can change suppliers in your virtual workspace without losing the identity management component. Groupcall provide such a service for schools. Of course it does have a cost and IDaaS is duplicating functionality built into MLUK, O365 and GAFE, so may not like value for money. It is a more future proof approach.

Given purchase of MLUK you are likely to start out using MLUK Connect as the basis of single sign on but you have a choice.

(From interview- see above
Office 365
Some Google applications

Google is through Gaia about pros and cons. Spoke to the account managers about the stage of development – informed Mic and built the conversations...
2.Next to help with Greenscreen project planned next
3. Consultancy on Work space with Nicola Dewey. Head I IT- resp with the learning platform
Goggle for sharing. My learninguk ..platform. Needs to become the respository for shared resources and course- static use...Does provide single resgistsration to other service but need a single sign in starategy..
Mike has the strategetic use

5. Go live training...)

Bernard Dady (Head of Education Transformation) MirandaNet co-researcher

Bernard is an educational strategy, design and technology professional who leads Gaia's training and professional development service and advises the Company on matters educational.

Bernard has extensive experience of developing initiatives and maintaining strategic partnerships between private sector organisations and forward-thinking educational providers. He is a published author and editor with strong ICT skills brought to bear in the generation of a wide range of published material. He has several years of experience in client and bid side advisory work in the design of new schools and integration of their ICT systems. Bernard has worked in education for over 30 years as teacher (Sheffield), adviser/inspector (Kirklees), education action zone director (South Bradford) and local authority strategic manager (Bradford). Until early 2010 he was the BSF Programme Director for Tribal Group PLC where he worked as a consultant adviser to several major contractors on the design of new schools.In previous roles he has managed implementation of local authority key skills initiatives; acted as environmental education and humanities adviser; led Ofsted inspection of secondary schools; authored ten multi-media CDs; written six school text books and was formerly editor of Wideworld Magazine for Phillip Allan Updates.

Bernard has specialist knowledge in education, especially of: learning & teaching; curriculum development, learning space design and the application of ICT. He leads a team of educational professionals to offer quality assured support for ICT implementation and effective use in all phases. He has broad knowledge and experience of a wide range of hardware and software solutions commonly used in the education sector and is a member, and accredited tutor, of Naace (The ICT Association).