

**iPADS IN ACTION: AN INVESTIGATION INTO
HOW THE USE OF iPADS CAN HELP IMPROVE
YEAR 7 STUDENT ENGAGEMENT AND
ATTAINMENT IN A SECONDARY GRAMMAR
SCHOOL**

RONALD EHREN

**A RESEARCH & DEVELOPMENT PROJECT
SUBMITTED FOR THE
MSc LEARNING & TEACHING 2016**

DEPOSIT AND CONSULTATION OF THESIS

One copy of your dissertation will be deposited in the Department of Education Library via the WebLearn site where it is intended to be available for consultation by all Library users. In order to facilitate this, the following form should be completed which will be inserted in the library copy your dissertation.

Note that some graphs/tables may be removed in order to comply with copyright restrictions.

Surname	Ehren
First Name	Ronald
Faculty Board	Department of Education
Title of Dissertation	iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Declaration by the candidate as author of the dissertation

1. I understand that I am the owner of this dissertation and that the copyright rests with me unless I specifically transfer it to another person.
2. I understand that the Department requires that I shall deposit a copy of my dissertation in the Department of Education Library via the WebLearn site where it shall be available for consultation, and that reproductions of it may be made for other Libraries so that it can be available to those who to consult it elsewhere. I understand that the Library, before allowing my dissertation to be consulted either in the original or in reproduced form, will require each person wishing to consult it to sign a declaration that he or she recognises that the copyright of this thesis belongs to me. I permit limited copying of my dissertation by individuals (no more than 5% or one chapter) for personal research use. No quotation from it and no information derived from it may be published without my prior written consent and I undertake to supply a current address to the Library so this consent can be sought.
3. I agree that my dissertation shall be available for consultation in accordance with paragraph 2 above.

iPads in action: An investigation into how the use
of iPads can help improve Year 7 student
engagement and attainment in a secondary
grammar school

Contents

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school	2
Abstract	4
Chapter 1: Introduction.....	5
Reasons underpinning this investigation	5
The Aim	7
Understanding the School Setting.....	7
Chapter 2: Reviewing the Literature	9
How is technology used within schools?	10
How are iPads used within Education?	13
What is engagement?	18
How can engagement be improved?	21
Questions resulting from the research.....	26
Chapter 3: Research Methodology and Results	28
Methodology.....	28
Analysis Methodology	30
Setting up the project and staff collaboration	31
Research Cycles.....	36
Surveys	37
Focus Group Interviews.....	38
Attainment	39
Survey Results Analysis	42
Next Steps	51
Focus Group Interview analysis.....	52
Attainment Results Analysis.....	61
Limitations.....	64
Chapter 4: Conclusions.....	67
Bibliography	72
Appendices.....	80
Appendix A: Padagogy Wheel. Rosenthal and Eliason, 2015	80
Appendix B: Questions from Student Survey	81
Appendix C: Questions and Responses from focus group interviews	83

Abstract

Digital technologies continue to increase in their popularity and use throughout all forms of education. In recent times windows devices with keyboards have been most popular in many schools but there may now be a shift towards using tablet devices. Therefore, it is important to ask what is the impact upon student engagement and attainment within computing of using iPads? In a selective girls grammar school, where all students in Years 7 to 9 had access to a netbook previously, this investigation looked at the implications of the move away from netbooks to iPads instead. It considered how the use of iPads could alter students' engagement with regards to their learning and whether there are any benefits to attainment within computing lessons where they already have access to more traditional digital technologies. The investigation was carried out via an online survey which was completed by those students in Year 7 with access to an iPad. Once the survey had been completed 2 small focus groups were then selected and interviewed so as to further investigate the findings from the survey responses. Using computing as a case study, this investigation also considered the implications the use of iPads had on attainment. During this investigation it was discovered that the use of iPads did increase student engagement. There were a number of different reasons why students felt that the inclusion and use of iPads in their lessons increased their attainment. These included more competitiveness, increased independence speed and ease of use. The results found indicated that there were some benefits to student attainment in computing due to the use of iPads. These benefits were seen with regards to the value added results of the students in the study.

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Chapter 1: Introduction

Reasons underpinning this investigation

After recently being promoted to Assistant Headteacher in charge of e-Learning it was most logical that my investigation focused on digital technologies. The school has run a successful e-Learning scheme for a number of years. This has meant that netbook devices have been made available to all members of Years 7 to 9 that have joined the scheme. After the Headteacher observed some excellent use of iPads in Singapore, a decision was made to move away from netbooks and towards iPads. In September 2015 all Year 7 students joining the school's e-Learning scheme were to be given access to an iPad rather than a netbook. The Learning Foundation is a charitable organisation with a vision "to ensure all children have access at home and at school to exciting learning resources so that they may fulfil their potential" (Learning Foundation [Online], 2016; <http://learningfoundation.org.uk>). In our school, parents decide to join the school's e-Learning scheme they are committing to make donations which means the school will ensure that their child has access to a digital device (an iPad this year) at home and in school. The September 2015 Year 7 cohort consisted of 241 students with 231 joining the school's e-Learning scheme. Those not joining the scheme were informed they would have to provide their own iPad and they all agreed to this. Many were not joining the scheme as they already had their own iPad and they wanted to make use of this instead of getting a second device. One claim of the Learning Foundation is that "[they] know that children achieve their potential when they feel engaged with learning" (Learning Foundation [Online], 2016; <http://learningfoundation.org.uk>) and one of their foci is to help engage students via improving student access to digital devices. As such, my

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

investigation was therefore to focus on how our chosen device of an iPad this year could be used to improve Year 7 student engagement within lessons and whether they could improve student attainment in computing. Due to time constraints, and the ease of access to colleagues and students as a computing teacher, I selected to only use computing as case study to investigate if there is an improvement in attainment. Selecting computing as a case study meant that I was able to collaborate closely with my department and ensure that we were driving the use of this new device forwards while leading in the development of the use of iPads within the school. An unfortunate limitation of this, however, is that any findings relating to attainment may not be representative across all subjects. The findings are likely to give an insight into the impact the use of iPads will have on attainment and all subjects will be able to take something from these findings. Another reason for carrying out this investigation is that part of my responsibility is being in charge of the e-Learning scheme and overseeing the successful running of this. I therefore wanted to be assured that providing our students with iPads instead of Netbooks was going to be the most appropriate course to take. If the decision to provide students' with access to iPads as their digital device is deemed to be successful then future Year 7 cohorts will also be provided with access to iPads rather than netbooks or laptops.

The Aim

The aim of this investigation is to identify whether or not the move away from netbooks for all students that join our e-Learning scheme is the right choice to have made. More specifically, it is identifying whether or not iPads are really the correct device to enable our students to learn better, be more engaged with their learning and achieve better results with regards to their attainment levels in comparison to their target grades.

Understanding the School Setting

The school is a selective girls grammar school which allows boys into the sixth form and is situated in the south east of England. The basic characteristics of the school can be observed from the Ofsted School Data Dashboard for the academic year ending in 2014 and from the Government's school comparison service for the 2015 academic year. From the Ofsted Data dashboard it can be seen that the school is in the lowest quartile for Free School Meals allocation and for students with Special Educational Needs provision. In 2015 these figures remained low and the Government's school comparison service showed that the school had 0.2% of pupils qualifying for Special Educational Needs and Disabilities support compared to the national average of 1.8%. There were also only 6.2% of pupils being eligible for free school meals at any point in the last six years compared to the national average of 29.4%. Both data sources show that the school is in the highest quartile (or highest achieving group) for overall GCSE results with 99% of pupils achieving 5 A*-C grades including English and Maths. In comparison to this, in 2015, the National Average for this was 53.4%. The Ofsted

Data Dashboard also showed that the school was in the highest quartile with regards to progress made by students in English and Maths. It showed that the results were in the top 20% of the country. This high performance was again maintained in 2015 with 99% of pupils in English and 97% of pupils in Maths making the expected levels of progress. In comparison, the National Averages for these subjects were 71.1% and 66.9% respectively. Reviewing this data it is clear that the school is a high achieving girls grammar school which achieves outstanding results. Boys are accepted into the sixth form, however, this is not likely to have any implications on the findings as this research will only focus on Year 7 students. Supporting the previous claims about the high standard of education provided at this school, it is also important to be aware that when the school was last inspected by Ofsted, January 2012, it was deemed to be an Outstanding school. This shows that the school is achieving at consistently high levels and the students have outstanding provision. We are always striving to improve and this project will investigate if using iPads instead of Netbooks is an appropriate decision.

Chapter 2: Reviewing the Literature

Before moving ahead with the action research it was important to have a better understanding of how emerging technologies are used within education. It is also important to identify what engagement, with regards to learning, actually is and whether or not being more engaged leads to achieving higher attainment grades. Technology is used throughout education, and in our everyday lives, more and more. However, what benefits are seen with regards to the levels of attainment and achievement which are realised when using certain technologies, such as iPads, and are there improvements in levels of engagement?

Therefore, this literature review has been guided by four key questions:

1. How is technology used within schools?
2. How are iPads used within schools?
3. What is engagement?
4. How can engagement be improved?

The quest for understanding what engagement is and how technology could be used to improve this, as well as attainment, is what has guided this research project. Before consulting the literature my opinion would be that engagement is the students wanting to do well, wishing to do better and trying to get as much from their educational experience as possible. If students are more engaged in their learning then it should follow that their attainment levels will improve as they will be working harder and therefore learning more. Identifying whether or not this is what others consider it to be, and seeing how the use of

technology, namely iPads, can actually improve these factors is what has initiated this investigation.

How is technology used within schools?

Technology has been used within education for a number of years now and this usage has grown over recent years. We have moved from a situation where “computers in schools were a novelty” (Hastings, 2014: [Online] www.faronics.com) to one now where “computers play such a fundamental role in everyday life, their significance has increased” (Hastings [Online], 2014: www.faronics.com) and technology can be found embedded within schools and classrooms. Supporting the understanding that digital technology is being used much more within education, Selwyn (2010) also identifies that ‘digital technology is now a significant element of education systems around the world’ (Selwyn, 2010: 23). Furthermore, Ditzler et al (2016) even claim that ‘[n]ew technologies are a large part of the educational landscape in the 21st century. Emergent technologies are implemented in the classroom at an exponential rate.’ (Ditzler et al, 2016: 181) It is not just schools that have driven these changes but also governments and policy makers. Many governments have implemented policies to ensure that their education systems do not fall behind with regards to the way in which digital technologies are used. Selwyn (2010) argues that ‘schools technology can now be said to constitute a major policy concern throughout the developed and developing world’ (Selwyn, 2010: 58). The application of computers and technology within education varies. In some institutions it could be partially integrated with it being used in lessons for basic skills, such as word processing or producing presentations. In others it could be well embedded, being used for more advanced uses, such as producing

multimedia products and students writing their own programs. (Edutopia [Online], 2008: www.edutopia.org). The use of technology in classrooms is likely to include teachers making use of devices such as Interactive whiteboards to present information, electronic devices to take registers and the inclusion of virtual learning environments (Livingstone, 2012). The use of digital technology is vast and varied and, with new and emerging technologies, changing all of the time.

However, is the use of digital technology changing fast enough and are emerging technologies being included appropriately? A study carried out by Hsu (2011) identified a number of different uses of ICT within a school setting but also commented that the progress of the use of ICT has been slow and this was for a number of possible reasons. Some of these reasons could be the impact a teacher believes using technology would have on their students' learning, or perhaps their own proficiency. These findings were supported by Judge (2013) whose small scale study identified that although ICT was being used more and more within education, and there had been a number of studies showing the benefits of using ICT within an educational setting, it was perhaps not being used as well as it could have been to date. This is likely to be due to the 'complexity of factors affecting ICT implementation in a variety of school settings' (Judge, 2013: 328). These issues included purchasing hardware and software, teachers' ICT skills, availability of technical support and a number of other possible underlying factors. Umar and Jalil (2012) carried out a study across 4 secondary schools in Panang (Malaysia) and found that three from the top four uses of ICT by students included what they described as being 'basic skills'. These were using the Internet to carry out research, producing slide presentations and creating portfolios of work.

From this literature it is clear that ICT is being used within an educational setting but the way in which it is being used is perhaps not as good as it could be. Is it therefore possible that a move away from more traditional ICT practices to some of the more recent and innovative uses could help assist with the improved integration of ICT within schools? Some schools may not move to newer and more “innovative” technologies quickly however due to poor experiences with them in the past. Selwyn (2010) argues that this could be the case because “schools have long been party to a seductive cocktail of claims, promises and contentions made on behalf of new and emerging digital technologies” (Selwyn, 2010: 19). When schools then implement these new technologies they find that the products do not do what it was that they were supposed to be able to do, or they do not bring the benefits that they were supposed to bring. However, as digital technology becomes more and more a part of our everyday lives it could be that these changes do need to be made more quickly.

If a reason for this is needed for then perhaps Gilksman (2012) has given one which will support any proposed migrations to use new technologies such as iPads:

‘Rather than using iPads to deliver and drill content, we should strive to empower students to create, investigate, and innovate. In doing so, we encourage students to develop the skills they’ll require to become lifelong learners who can thrive in our exponentially changing world.’ (Gilksman, 2012: 2)

Gilksman (2012) considers the notion that perhaps education as a whole needs to change. The skills being taught should be more focussed on developing learners and their desire to want to learn, be life-long learners and drive their own learning forwards. iPads could therefore be a tool to support this if education moves away from the more “traditional” approaches to teaching. Instead of a situation where a teacher stands at the front and the students copy from the board, iPads could be used to develop a more dynamic learning environment. This could be one where the teacher takes more of a guiding roll enabling

students to learn more independently, make more of their own choices and become more proficient problem solvers.

How are iPads used within Education?

As already discussed, the use of digital technology has been embedded well in some areas of education but it appears that there is still some scope for developing this further. Why therefore may iPads be the preference for some educators? Some of the reasons could simply be the small size, the fact that they are lightweight with a touch screen, the ease with which they can connect to a network or the number of apps available for use on them (Falloon and Khoo, 2014). Apple have also developed a significant amount of networking through the creation of the “Apple Education” sector. They report, although this is from their marketing literature, that with the use of iPads, ‘lessons become more immersive through the power of touch, motion and sound’ (Apple [online], 2016: <http://www.apple.com/uk/education/>). It could be considered therefore that the use of iPads in education could be beneficial. They bring a different perspective to the way in which lessons can be delivered and students can engage with their learning. However, as already identified when considering digital technology, is likely to need to be carefully considered and planned. It should not be assumed that students will just pick them up and make effective use of them.

In this section I will consider how iPads are used in an educational setting and try to understand some of the reasons behind their use. As I begin this however, due to these devices being relatively new with regards to their use in classrooms, it is worth noting that

currently their use is perhaps not as well understood as other technologies. Beauchamp et al (2015) carried out an investigation to see what considerations need to be in place to effectively train teachers how to use these devices appropriately. In their review of these strategies they commented that '[r]elatively little is yet known, or understood, about how teachers integrate the use of these devices into their classrooms' (Beauchamp et al., 2015: 164). Due to there not being a large knowledge base to draw from with regards to how these devices are used, this could cause possible issues for staff training and therefore thier effective use in the classroom.

The issue of ICT competence and teacher training is likely to raise its head when it comes to moving away from more traditional technology to emerging technology, such as iPads, within education. This is due to the fact that when it comes to the consideration of accessing and using iPads for educational work, these devices have to be used in quite a different way to traditional computers. Their use within education, like all other teaching tools, needs to be carefully considered. Peluso (2012) considers the use of new and emerging technology in education to be highly beneficial but not something that can just be put into a classroom without appropriate consideration. She argues that:

'While young people are engrossed with technology and social media within their everyday lives, using it to communicate, express themselves and learn in novel ways, simply allowing them to use their iPads, or providing them with classroom sets of iPods, does not implicitly mean they will be learning educationally beneficial material.' (Peluso, 2012: 127)

Not all academics and educationalists consider the use of iPads in education as being as effective as others. Some believe that they can be disruptive due to the different ways in which these devices can be used. Ramirez (2015) echoed the work of Peluso (2012) but also developed this argument further to then consider how these devices, to be of greatest

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

benefit, should not be used in the same way as more 'traditional' digital devices and applications. Ramirez (2015) states that they are not simply a replacement for a traditional laptop, netbook or tablet PC. He identified that if this were the case then there was a number of issues with regards to their use which would be somewhat prohibitive. If they were seen as simple substitute to the more traditional devices then he considered the lack of a proper file management system, inferior word processing and presentation software as issues but 'its most obvious limitation, the lack of a proper keyboard' (Ramirez, 2015: 535) all being obviously problematic to a more traditional style of scholar. He goes on to argue that the number of different apps available and other functions which can be used on the iPad actually does result in it being a very productive piece of equipment. When considering how to make best use of iPads in lessons Powell (2014) believes that an appropriate amount of consideration is required before apps are chosen and used within lessons. She states that 'When choosing iPad apps, teachers need to identify the individual strengths and weaknesses of the students in the class and align the choice of the apps to meet the needs of all learners' (Powell, 2014: 22). She also acknowledges that having the devices set up correctly is imperative for successful use and deployment of these devices. Without appropriate consideration being given to the restrictions in place on the devices this could lead to inappropriate use by the students and therefore result in them having a negative impact upon student's learning.

So how can, and are, these devices being used within education? Wood and Jocius (2014) investigated how iPads could be used to help students write more critically. They looked at a small sample of two young black males and investigated a number of different applications (apps) to help develop their critical writing skills. They found the iPad to be a very useful and

effective tool in developing critical writing skills. Importantly they concluded that technology, such as iPads, does not have a magic impact. They agree with Peluso (2012) and also argue that the use of these devices needs to be carefully planned, as with any other teaching tool or resource, so as to ensure that they are useful and effective in classroom practice. iPads appear to not just be suited to only one subject or just one function. This is likely to mean that they are able to be used in a variety of ways across different subjects and schools. The range and variety of apps has already been mentioned but there are further advantages reported with regards to using this device. With regards to improving literacy, Hutchison et al (2012) comment that 'the many forms of electronic books available through the iPad provide an added advantage over printed texts' (Hutchison et al, 2012: 17). This is because students are able to engage and interact with these electronic versions in ways that are not possible when considering their printed counterparts.

Another possible use is to encourage student talk, to support student collaboration and develop problem solving skills. This can be used and applied across a number of different subjects and situations. Falloon and Khoo (2012) found the use of iPads and different apps could help encourage student talk, and therefore collaboration and discussion, to develop ideas. Their study investigated how iPads could be used in a more collaborative way in comparison to more traditional digital technologies. They identified that '[their] results are very encouraging, and highlight the potential of collaborative learning environments supported by iPads to generate opportunities to raise the quality of student talk' (Falloon and Khoo, 2014: 19). They concluded that there was development in the amount of student talk due to the introduction of iPads. However, the quality of this talk could still be improved

and enhanced so as to make even better use of these devices and develop these skills in students even further.

Rosenthal and Eliason (2015) carried out an investigation in America to try and identify how iPads could be used more effectively in Physical Education at university level. They were interested in this as their research had identified that in a number of pre K-12 schools the use of iPads was already ubiquitous amongst many of their pre K-12 colleagues. As part of their study they tried to identify how to deploy iPads effectively at college level, both to staff and students, and also what they could be used for. They designed a 'Program-level pedagogy wheel for university physical education programs' (Rosenthal and Eliason, 2015: 37) which identified a number of different apps that could be used and what they could be used for. This made use of a play on words (padagogy instead of pedagogy) as they were looking at how the use of iPads could be used with regards to university level pedagogy. They produced a visually effective resource which identified how the use of iPads and available apps could be used. From their study, and of greatest interest, is the consideration that '[t]he resulting padagogy wheel has implications beyond the department-level learning objectives' (Rosenthal and Eliason, 2015: 39). This shows that, if not already being used across different departments for different skills and to fulfil different requirements, it is possible to do so and Rosenthal and Eliason's (2015) 'padagogy wheel' (Appendix 1) identifies what apps could be used for which purposes. This is a resource which would be very useful for staff as they, inline with Powel's (2014) recommendations, spend time planning and considering the apps that they will use to improve student engagement and attainment within their lessons.

Due to iPads being small, lightweight and easy to carry they also lend themselves to being used outside of the classroom. Geography fieldwork is one example of this. France et al (2015), in their book considering how and why iPads would and could be used while completing fieldwork, stated that they had 'found that the use of mobile technologies can help to engage our students in their field studies' (France et al, 2015: 146). They referred to a number of possible uses and reasons why iPads would be appropriate for use during the completion of fieldwork but they felt that one of the main benefits was the student engagement when using these devices. As they engaged so well with them the work produced was greatly improved. From the literature considered so far it is clear that there a number of different and beneficial reasons as to why iPads may be used in an educational setting. Of interest to me, and deepened from consulting the literature so far, is how iPads can be used to improve student engagement and why this is of benefit.

What is engagement?

When considering what engagement is it is necessary to consider this in all aspects of learning. It does not just stop at the end of a lesson, or when a student leaves a classroom, but must go beyond this if there are to be real benefits to a student's learning. Lawson and Lawson (2013) considered this aspect and identified that engagement was a culmination of a number of different things which could include; a student's interests, their peers, the culture of the school, their prior knowledge. They described it as the 'conceptual glue that connects student agency' (Lawson and Lawson, 2013: 433). Dockter et al (2010) carried out a media based research project where they were considering student engagement with a

media based curriculum. Their definition of engagement was one that included 'immersion and emotional investment' (Dockter et al, 2010: 418) with regards to learning.

Identifying what engagement actually is may not therefore be a very straight forward thing to do due to the fact that it can be considered to be different things by different people.

Hazel et al (2013) argued that:

'The underlying premises of all definitions are that engagement is plastic (and therefore can be changed and increased) and that higher levels of engagement result in improved academic performance and increased likelihood of school completion for the student.' (Hazel et al, 2013: 690)

They suggested that 'Engagement is a malleable component that may impact students' school achievement.' (Hazel et al, 2013: 698). When Leach (2016) considered what engagement was, she acknowledged that in the past it has been described as being:

'initially focused on what students did to enhance their learning – the time, effort and commitment they put into their study; the use they made of the resources; their study intentions and conceptions of learning.' (Leach, 2016: 24)

Her work showed that there are a number of factors which need to be considered. She identified that engagement is not an attribute which is particularly easy to identify and perhaps even measure accurately. This builds on the work of Lewis et al (2011) who were able to identify links, although some modest, between 'life satisfaction' (could be generalised as happiness), behavioural engagement, emotional engagement and cognitive engagement. All of these factors and variables were identified as factors which were working together to lead to a student being engaged or not.

With regards to measuring engagement, Curtis et al (2015) argued that engagement could be considered in very narrow terms. They suggested it may actually just focus on one specific

area, or course, and could even just be with regards to a 'specific learning activity, the outcome being academic achievement and learning' (Curtis et al, 2015: 37), rather than looking at a student's program of study as a whole. This is interesting as in their work they agreed with the description provided by Hazel et al (2013). They also identified the outcome of engagement as being something which could be measured with regards to an academic outcome. They suggest it is not just measurable by whether or not a person states that they feel they have been more engaged with regards to their learning.

From reviewing the literature it is clear that engagement is something which is somewhat difficult to define and measure. Reasons for this are that many academics appear to consider engagement to be something which includes a number of different aspects affecting an individuals' learning. However, it also appears to be inextricably linked to attainment meaning that even though it may be difficult to define and measure, one of the possible reasons there has been so much investigation into what engagement is could be the academic attainment benefits that increased engagement is likely to bring. If students are more engaged with regards to their learning then it is likely that there will be improvements seen with regards to their achievement and learning. These points consolidate the importance of considering student engagement and also the impact upon student attainment.

How can engagement be improved?

With a better understanding of what engagement is, and the benefits it appears to bring to attainment and achievement, it therefore follows that an understanding of how it can be improved is required. If this is better understood then strategies should be able to be identified, when considering planning, which will be able to enhance student engagement and therefore improve attainment levels achieved by students.

When looking at student engagement at undergraduate level, Hu and Kuh (2002) believe that student engagement is the most important factor when it comes to considering student learning. They make reference to seven different principles which should be prioritised. 'These principles include student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning' (Hu and Kuh, 2002: 556). Jewitt et al (2011) carried out a case study review across a number of English primary and Secondary schools to see how online learning platforms, being used to organise learning, benefitted students learning. They found that students having ownership of tasks, how and when they complete them increased their engagement with their learning. When considering how to improve student engagement, although only with regards to distance and online learning, Sun and Rueda (2012) found that 'the use of online activities and tools such as multimedia and discussion boards may be important ways to increase student engagement in an online learning environment' (Sun and Rueda, 2012: 202). Discussion boards being identified as a real life opportunity to share stories and explore narratives bringing benefits to engagement. Buijs and Admiraal (2013) identified that engagement was not just improved from within the classroom, although the

curriculum design could enhance the excitement and therefore engagement. They also argue that 'students' class preparation outside school [w]as a necessary condition for their engagement in class' (Buijs and Admiraal, 2013: 768). They considered that the tasks set outside of class were an important aspect of engaging students with their learning. Northey et al (2015) support this and also take into consideration the use of emerging technologies to aid engagement. They argue that working on tasks in class, as well as outside of class, using third party applications such as Facebook, leads to students being more engaged. If they use the external sources to consolidate what they have learnt in class then they will have a deeper and richer learning experience which will have a positive effect upon engagement and academic outcomes.

Miller-Day et al (2015) considered how narratives can increase engagement. Although they were looking at adolescent's engaging in a program to stop substance abuse, it is interesting that they found not only peer narratives but also teacher narratives as having a positive impact upon students' engagement with the 'right' decisions being made. '[Their] study discovered that overall narrative quality of the lesson was significantly related to student engagement' (Miller-Day et al, 2015: 616). The story telling, real life, element is therefore seen to have an impact upon engagement and could support the work of Northey et al (2015) as well as Sun and Rueda (2015) in helping us to understand why external use of technology, "real life" technology such as Facebook and discussion boards where student narrative is built in, has a positive impact upon the engagement of students.

If students are more engaged with their learning then attainment and achievement benefits are also likely to be seen. Northey et al (2015) also identified that there was a further link between improving engagement and raising attainment:

‘students who participated in both face-to-face on-campus classes and asynchronous online learning opportunities were more engaged than students who only attended face-to-face classes. In addition, the findings show that participation in the asynchronous setting relates significantly and positively to students’ academic outcomes (final grades).’ (Northey et al, 2015: 171)

Henderson and Yeow (2014) found, from their small scale study within a primary setting, that the ‘[u]se of the iPad often resulted in students spending more time and effort on their work’ (Henderson and Yeow, 2014: 86). Their work comments on the inclusion of iPads, within the setting they were investigating, leading to increased and improved engagement of students. They identified that there was an improvement in engagement and this had a positive effect upon student attainment as well.

A common theme running through this section is the continued and improved use of technology to enhance engagement. With there being so many new tools available all of the time, the inclusion of an iPad within the classroom, due to the fact that it encompasses a number of the strategies and techniques previously mentioned, appears to be something which may bring benefits to student engagement. As iPads have the potential to enable and facilitate a number of different possible strategies within lessons, their inclusion, even just when setting homework for simple research tasks, could lead to student engagement being enhanced. However not all research supports this notion, it not guaranteed that making use of iPads for classwork and homework would lead to improved engagement and therefore attainment. If teachers are not completely familiar with the use of iPads, or if they perhaps

do not plan to include them in their lessons appropriately, this could lead to possible issues. Frey et al (2015) found that there were benefits to making use of iPads in lessons. They carried out a small scale research project in a diverse urban high school in America and considered staff and student perceptions. They provided no professional development to the four English teachers used for the study. They found that the staff felt there were improvements in their ability to differentiate their lessons, enhanced student engagement, more beneficial collaboration between students and enhanced teacher efficacy with regards to planning and delivering lessons, all of which lead to benefits in their lessons. However, they did also report that there were some negative impacts due to the introduction of iPads. The biggest of these being time lost, either in delivery of instructions or in the time of the technical support staff ensuring that the devices were updated properly and working efficiently so as not to have a negative impact upon teaching and learning. In their conclusion they made reference to some of the arguments already identified in this review with regards to prior planning, consideration, preparation and implementation of iPads and digital technology. They state that 'when used well, technology can be a powerful way to engage students and facilitate learning' (Frey et al, 2015: 148). However, when its use has not been appropriately considered this is not likely to happen. They report that just purchasing devices and deploying them without any consideration will not have the intended impact upon student learning.

Ditzler et al (2016) carried out a study at a middle school in the Southwest of the United States where students had been given iPads to use for the academic year. They interviewed both staff and students and one of their main findings was that 'the iPad was a distraction in class and there were some behavioral issues as a result; interestingly, these were

mentioned by students as well as teachers' (Ditzler et al, 2016: 189). Tabor (2016) investigated student perceptions to using mobile devices at a business college in the United States. Although the students being considered were older than those which attend my school there were still some interesting findings. She identified that the students had identified that there were improvements to their engagement, this however was for less than half of the students she surveyed. From her small scale study of 33 students, 48% of those surveyed said either that they agreed or strongly agreed that they felt more engaged with their learning. More positively, 73% of those surveyed felt that the use of the mobile technologies had improved their performance in the course examinations. However, supporting the claims of Ditzler (2016), she did also identify that a small number of students felt that the mobile nature of the course was distracting stating that 'some students spent class time "browsing or playing" instead of participating in class discussions' (Tabor, 2016: 87).

This section therefore indicates that there are ways in which engagement could be improved. It has been seen that there are some benefits to making good use of new and engaging digital technologies upon student engagement, this in turn can improve attainment. Some of the other ways in which engagement can be enhanced is through giving students ownership of their own learning. Examples of this could be choosing what they do as well as how and when they do it, making use of real life experiences, using and improving student and teacher narratives, giving prompt feedback and having high expectations. However, without appropriate planning and consideration before strategies are put in place it does not seem that any of this is guaranteed to be achieved.

Questions resulting from the research

Having consulted the literature, and considering the different ways in which iPads can be used in education, it has been interesting to read that many scholars have identified these as being a worth while educational tool. There have been a number of studies carried out investigating the use of iPads in education which have identified a range of benefits to teaching and learning. These studies have considered primary schools, secondary schools, special needs, universities and staff professional development. Some have identified the possible issues with regards to introducing this sort of technology, such as teacher training, time required and possible distractions for students. However, there appear to have been a number of studies where iPads were used and there was an improvement to engagement and also attainment. If the introduction of iPads can improve student engagement, and this leads to an improvement in student attainment and achievement, then they could be a digital technology worth investing in. The school at which I work is a selective girls grammar school. I have worked there for a number of years and consider the majority of students at the school to be engaged and motivated individuals already. I am therefore curious as to how iPads could help to engage students that are already engaged with their learning. I believe the context of this investigation is going to be particularly interesting due to the high level of engagement I feel the majority of students at my school already exhibit. My main investigation will focus on the engagement of students in this sort of school setting if iPads are to be introduced. I am also curious as to whether or not, in a school where students are engaged and attainment is already high, attainment would also be improved. Due to the fact that all Year 7 students joining our e-Learning scheme will now be given access to an iPad, it is therefore incredibly important that these areas are carefully and systematically

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

investigated. Having consulted the literature it is also clear that for increased engagement and attainment to be realised, staff need to be well prepared and have access to appropriate training so as to facilitate this. This means that staff training is also an important area to be considered so as to ensure that the staff and students have the best possible chance of making suitable and appropriate use of iPads. The areas of investigation arising, with a focus on Year 7 students, will therefore be; Firstly, with the introduction of iPads in Year 7, are there any benefits to student engagement in this sort of school setting? Secondly, as there appears to be a link to attainment via the use of iPads, possibly due to the improved student engagement, will introducing iPads have a positive impact upon student attainment and achievement?

The inclusion of iPads within an educational setting appears to have a number of different benefits and this device is able to offer a different sort of functionality to users, both learners and teachers. With regards to the impact upon attainment, and due to time constraints, my focus will be on Computer Science. With the recent Computer Science curriculum changes (Department for Education [online], 2013: www.gov.uk), and this subject now being seen as a much more important subject, is this device able to raise student attainment. As I am a Computer Science teacher, I am interested to find out whether iPads are able to raise student attainment in Computer Science? My review of the literature has guided me to consider the following questions to be answered within my own action research project:

1. Can iPads help improve Year 7 student engagement?
2. Can iPads help to improve attainment in computing?

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Chapter 3: Research Methodology and Results

Methodology

To complete this research I undertook an action research style project to identify how iPads could improve student engagement and further more improve student attainment. Sutton et al (1978) published a short paper which described action research as being 'concerned with the everyday practical problems experienced by teachers' (Sutton et al, 1978: 356). As my school has already provided the Year 7 students subscribing to the e-Learning scheme with iPads it could be considered that the problem to be concerned with is how to make best use of iPads so as to improve student engagement and attainment. It is also necessary to show that they are more suited to the current classroom setting than the more traditional tool of a netbook. Womack (1997) identified action research as a way in which something new, and a local problem specific to an individual, could be considered effectively. This also meant that this project was best suited to being an Action research project as it was to investigate a situation bespoke to my school. Due to the fact that iPads as a learning tool is a fairly recent addition to the classroom, it seemed like a good opportunity to try and add weight to the growing literature considering their use in this way. With the action research model having been described as one which can 'offer[s] stimulating ideas on alternative methods, theories, and evaluative criteria that can be rationally debated' (Ozanne and Saatcioglu, 2008: 424) this seemed to be a logical route to take. The main aim for this research project was to identify whether, in our school setting, iPads will increase student engagement and also their attainment. Carrying out research in this setting, with Year 7 students where iPads are being used, is therefore most appropriate. As I intended to work

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

with students on finding out how they felt about using their iPads in their lessons, and staff in preparing them to make use of the iPads in their lessons, an action research style approach most suited this project. This was because of the cyclical nature of Action Research. It means that strategies can be put in place, evaluated and returned to as necessary in cycles making appropriate improvements when required. I was firstly able to engage staff in training to ensure that they knew how to use the devices. Secondly I could then review how the students felt about using the iPads so as to be able to provide more support to staff and perhaps alter our focus with regards to how we were all using the iPads. Having reviewed the literature I had an acute appreciation for how important it was that staff knew how to use the iPads appropriately so as to help ensure this project was successful. Once this had been implemented I was then able to engage the focus groups to understand better what the response to the earlier considered survey might have really meant.

I felt that student voice was incredibly important for this investigation. I was interested in understanding how engaged students felt they were and could they be more engaged with their learning. If they felt that they were more engaged what was it that led to this and how much impact did the use of iPads have upon this. The rationale for the weight given to student voice in this project is because, by some, it is considered that 'voice is a necessary conceptual, pragmatic, and democratic tool for getting things on the agenda that might otherwise be lost or marginalize' (Baker, 1999: 370). However, some care needs to be taken with regards to the amount of weight 'voice' is given. Baker (1999) also identifies that things such as an individuals' background or their own agenda could also lead to the reliance on 'voice' being rather detrimental to research. I also felt that for this project to be successful I needed to take into account student voice so that 'instead of just working on children's behalf [they felt we were] working with and alongside them' (Bragg, 2007: 510). I needed

the students to be engaged with the process of identifying whether or not using iPads was the right thing for them, and for future years, so that their opinions would be more reliable and valid. I believed this to be of importance as it was going to enable me to find out how to ensure iPads were being used in the most appropriate way enhancing student engagement and attainment. I did consider Baker's (1999) warning of other underlying issues relating to voice. As such, and so as ensure I discovered what I was interested in, I decided upon the questions to be asked rather than allowing this to be a "youth led" project where 'the young participants developed their own research questions related to the impact' (Groundwater-Smith and Mockler: 2016, 172) of iPads in our school in this instance. This could however be an interesting investigation in the future.

Analysis Methodology

Due to the varied type of data received I had to carefully consider how to analyse this. Once I had compiled and considered the survey results I was able to identify the 'key themes' and 'big ideas' (Krueger, 1998) so as to inform my decisions and questions before moving ahead with the interviews in the focus groups. I made use of coding at this stage so as to be able to identify these confidently. Doing this gave me a good insight into what student perceptions and considerations were in general and enabled me to then find out in more detail what opinions were in the focus group interviews. When analysing the focus group responses I maintained a similar approach and initially identified the 'big ideas' which gave me an overview of the main topics being discussed. I again followed the recommendation of Krueger (1988) when doing this so as to ensure the 'results [were] organized around key questions, themes, or big ideas' (Krueger, 1998: 149) and were correctly drawn out from the

discussion. To do this I again used a method of coding so as to group responses and help to identify underlying patterns in responses. I ensured that I reviewed and analysed the data collected from the focus group interviews as soon as possible after conducting them. This was in line with the recommendations of Vaughn et al (1996) whom, in their review of focus group data analysis stated 'data analysis should be initiated as soon after the conduct of the focus groups as possible, focus groups should be transcribed immediately after they are conducted' (Vaughn et al, 1996: 101). I found this to be of great benefit and it enabled me to identify the themes and "big ideas" with relative ease due to the discussions having been held quite recently.

When considering the assessment results from the computing assessments this enabled me to make a comparison of the average grades achieved across the year group. I also made use of the average VA results to see if students had made more progress this year, after having access to iPads, in comparison to the amount of progress they made last year when they had netbooks.

Setting up the project and staff collaboration

As the Year 7 cohort that joined the e-Learning scheme were being provided access to iPads as their primary digital devices, it became my responsibility to ensure that this decision worked. I needed to ensure that these devices worked correctly for the teaching staff, and more importantly the students, so as to enable teaching and learning of the highest level. This meant that for this change I was the 'formal Leader[s] responsible for the formation, reproduction and transformation of particular practices' (Wilkinson and Kemmis, 2015: 345).

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

The practices in question were, in this case, the teaching and learning of our students. It also included staff making suitable and appropriate use of iPads so as to engage students and continue to raise attainment.

The first thing I did therefore was to arrange for a trainer to come in to school to meet with the senior leadership group and all of the department lead teachers. The aim of this meeting was for lead teachers to be exposed to a number of the different apps that are available for use on the iPad. As school and subject leaders I felt it important that they understood what the apps were, how they can be used and decide upon those that we, as a school, would encourage and make use of. After this initial meeting and consultation I needed to ensure that the whole of the staff body had a good understanding of what iPads are, how they could be used and applied within their subjects and what the potential benefits of this was. As many staff were not familiar with iPads I arranged some appropriate professional development for staff. I felt this was important so as to ensure that staff were able to see how they could use these devices and understand that they were also something different to the more traditional devices previously used. This was an issue raised by Ramirez (2015) and certainly in need of consideration as these devices do work in, and need to be used in, a different way to netbooks and laptops. I also wanted staff to have an idea of the different sorts of apps and functions these devices could make use of, an important concept identified by Powell (2014), so as to get the most benefit from using them. With that in mind I instructed the trainer to cover certain apps, as had been agreed with the leadership team and department lead teachers at the earlier meeting already mentioned. The Year 7 Students joining the e-Learning scheme received their iPads in July 2015, when they came in for their taster day and staff received theirs at about the same time. This gave all involved

enough time to prepare and make some use of these devices over the summer break and before September.

For the organisation of the staff iPad training, due to issues with regards to covering lessons, I was only able to use Monday afternoons where there was a department meeting scheduled for the end of the day. This meant that the organised training would take place on Mondays. Sessions started at 1:30pm, halfway through lunch, and continued until the end of the scheduled department meeting slot, 4:30pm. I met with the Deputy Headteacher in charge of curriculum and arranged the training. We discussed this together and agreed to organise it in a way so that staff would be grouped together in similar departments. We felt that this would be of most benefit to staff as it meant that they would then be able to share ideas and resources with other members of staff that would be likely to be using the iPads for similar things and perhaps in similar ways. When the groupings had been organised I booked an external trainer to come and deliver the sessions meaning that all staff would receive an afternoon training session on how to use their iPads. As well as this externally provided training I collaborated with another member of staff, who had a lot of experience using iPads, to provide further training opportunities for staff. Together we ran what was referred to as “coffee and croissant” training sessions on Tuesday mornings before school. These were a mixture of open drop in “iPad surgery” sessions and other sessions where there was a specific focus on the use of particular apps. These sessions became more important after the first cycle of action research had been carried out as they allowed the feedback from students to be incorporated within the training so that the training delivered could support the project further. Also, as already identified, the consideration of staff training was

important so as to ensure the successful use of iPads to enable student engagement and improved attainment within lessons.

After the Computing department had received their training we agreed on the use of the Apps to use within computing. We met and discussed what would be a manageable number of apps to focus on and which we felt would be of most benefit to us, our students and the rest of the staff body. After the first cycle of action research, when the survey results had been analysed, we met again and this time agreed on whether we were focussing on the most appropriate apps. We then decided that in alternate sessions we would also focus the “coffee and croissant” training on these apps to support the project. We did this from the end of January onwards for any staff members that wished to attend these training sessions.

The selected apps were Showbie, Socrative and Kahoot, a brief description of each follows. Showbie is an app which allows students to upload work and make corrections/alterations based on feedback. It enables teachers to mark and assess student work and then provide feedback in a variety of ways including audio recording, text comment or freehand annotation. It also provides teachers an opportunity to upload exemplar work to shared folders and for students to assign themselves to a class so that they are in the correct class for the teacher to assess their work. Socrative is an app which allows teachers to administer assessments which are multiple choice and also include open responses. The questions in the assessment can include images and the order in which they are delivered can be altered so that students do not have the questions in the same order as the person sitting next to them. There is also a group quiz feature where students work in a team to complete the quiz

with the most correct answers in the shortest time. For all assessments teachers can receive the results of individuals that have completed it in a number of different formats. Our third choice was Kahoot which is an online quiz where there is a central question displayed with a set of multiple choice answers. Students join the quiz and only see the possible options to click on in their web browser or via the app. It is timed, there is engaging music and the students get to see where they are in the class and how far behind the next person they are.

When reflecting upon, and evaluating, the training delivered, myself and my internal training colleague felt that the attendance at our “coffee and croissant” sessions was mixed. Some of these sessions were reasonably well attended but unfortunately the majority of them were not. However, the compulsory sessions with the external trainer were of course well attended and staff said they found these to be valuable. From this planned training I believe that staff had been well equipped to make appropriate use of the iPads in their lessons so as to enable them to make suitable and appropriate use of them with the goal of improving student engagement and attainment.

In September when the Year 7 students arrived, via their computing lessons, they received some training of their own. This included how they would gain access to the school network, make use of and download certain apps, how they would use e-mail on their iPad and other somewhat “basic skills”. This training was necessary so as to ensure that the students were able to make appropriate use of these devices in their lessons and to support their learning across all subjects.

Research Cycles

After the majority of the staff training had taken place I carried out surveys to identify how the students had perceived the use of iPads in their lessons. I wanted to identify if they thought they had led to them being more engaged in their learning. I also wanted to see if they could identify what it was about the iPads that affected them in their lessons. This was the end of the first cycle of the action research approach. The responses received enabled me to identify to staff what students found to be engaging about using the iPads. This meant I could then tailor the supplementary staff training being provided and also ensure that within computing we were using iPads in a way that students found them to be most engaging. After the surveys had been conducted, and the results analysed, I returned to the investigation and interviewed a much smaller number of students. This enabled me to make use of their narrative to identify what they individually felt and see how this compared to the survey results. This was the end of the second cycle of the action research and allowed me to see if the same patterns were being identified and if positives and negatives with regards to the use of iPads had remained the same. Finally, using the end of year results I was able to compare the attainment results in computing from this cohort and the cohort from the year before. Collaborating with colleagues internally was of great benefit to enable me to maintain the cyclical style of this action research. Through this approach I was able to select the apps and uses of the iPads so as to enable the best results for all involved. It was also incredibly helpful when reflecting on how this action research project had been.

Surveys

I made use of surveys to get an overview of the whole cohort with regards to how they found the use of iPads in their learning. One of the main reasons for this choice was that '[s]urveys are a scalable measure of student engagement. Electronic survey administration systems, such as Qualtrics, Google Forms, and Survey Monkey, make it easier to distribute surveys to students who are learning at a distance' (Henrie et al, 2015: 48). Another of the big attractions to using surveys was the fact that '[s]tudent surveys are particularly popular because they are generally less expensive and easier to develop and administer than tests of student knowledge and proficiencies' (Carini et al, 2006: 2). This seemed logical and the administration of surveys would also be fairly straight forwards because our Virtual Learning Environment (VLE) facilitated these being conducted. I was able to produce a survey and students were able to respond to this with ease. The use of surveys allowed me to include both closed and open questions and to get responses from the year group as a whole. When analysing the responses to the open ended questions, following a technically open question, I made use of the work of Popping (2015) to extend the answers given. Asking the open ended questions facilitated the students giving more detail and explaining the reasons behind the answer given to some of the more closed questions. For some of the questions the codes and options were given in the questions and decided beforehand, but for others these were identified after the responses had been received. I therefore made use of a 'combination of these two approaches' (Popping, 2015: 32) to collect and analyse results from the sample. I was pleased with the number of respondents as the year group consisted of 241 students and 206 students responded to the survey. The surveys were completed at

the end of the first cycle of action research when students had been using their iPads during lessons and for homework so as to support their learning.

Focus Group Interviews

Having compiled the results from the survey, I wanted to understand the responses better, and explore in greater depth, what the underlying thoughts and feelings from the students were with regards to the use of iPads in their learning. The focus group interviews were therefore carried out after changes had been put in place following the survey responses. This meant that they were at the end of the second cycle of action research. I selected two small focus groups to interview. Although, in their book about how to carry out qualitative research, Marshall and Rossman (2014) identify that focus groups are normally between seven and ten people, they do also state that these groups could consist of as few as four people. They consider one of the benefits of focus groups to be that 'this method is socially oriented, studying participants in an atmosphere more natural than artificial experimental circumstances and often more relaxed than a one-to-one interview' (Marshall and Rossman, 2014: 154). They also identify that this approach should give results which are reliable and also easy to understand as the way in which these sorts of interviews are conducted means that it is an approach which is readily understood where the findings are then believable. I felt that working with two smaller groups would make it easier for me and would be better for them in comparison to individual interviews as they would feel secure and comfortable enough to share their opinions honestly. I initially selected eight students that had not only responded to the survey but also represented a range of abilities from across the year group. Unfortunately, on the day of one of the interviews one of the students was unwell. As a result I was only able to interview seven students rather than the originally planned eight. I

interviewed the students as two small groups of four and three respectively. My interview instrument included a number of questions focussed on the areas I was interested in after having carried out analysis of the survey responses. I ensured that I had my underlying questions 'supplemented by probe questions in case the respondent[s] ha[d] trouble getting started' (Huberman and Miles, 2002: 248). This was also so as to help the interviewees give full answers and to enable me to get as much detail and information from them as possible. I made it clear to them at the start of the interviews that I needed their full and honest opinions, that the results from the interviews would be anonymised and all responses were for the benefit of the research being carried out. Those that were interviewed, and indeed all those that responded to the survey, did so of their own free will. In accordance with the advice and guidance from BERA (2011). I made it clear to all those involved in the research that they could withdraw themselves and their responses at any time. I ensured that they all fully understood what the focus of the research was and why it was being undertaken. I used no method of coercion and all members of the focus groups made the decision to be involved understanding that this was the case. I also informed all students involved that their contributions would be kept secure and be anonymised as the 'confidential and anonymous treatment of participants' data is considered the norm for the conduct of research' (BERA, 2011: 7). Throughout the entire process of conducting my research I ensured that I conformed to the BERA 'ethical guidelines of educational research' (BERA, 2011).

Attainment

As a computing teacher I was able to collaborate with the computing department with ease. I had decided to look at the student attainment through the lens of computing due to time

constraints so I was unable to consider all departments unfortunately. Working with the computing department we ensured that we made appropriate use of Showbie, Socrative and Kahoot as the apps we were going to focus on. This meant that we were consistent across our department with regards to the use of iPads within lessons. We did however make more use of iPads within our lessons as we progressed through the year and as our confidence, knowledge and understanding improved. To ensure a consistent approach at all times we made use of central schemes of work. This meant that we all continued to make use of the same resources, carry out the same assessments and also use the same apps at about the same time as each other for the same purpose.

When considering the impact of iPads on attainment in computing I used the average percentage of all students in the end of year test. I compared this to the average percentage achieved by all students that completed last years' end of year test. I also made a comparison of the average percentages achieved in the assessments which took place in March this year and last year. I chose to do this so that I was able to make a comparison of results during the year, as well as at the end of it, to see if there was any difference here. I also considered the average Value Added (VA) score for the end of this academic year in comparison to that of last year. In the computing department the value added score is calculated by converting the grade achieved and the student's target grade into a number and seeing the difference between the two values. The conversion table for this can be seen below in Table 1. As we "fine grade" our results, based on new government guidelines for grades (Ofqual [Online], 2015: www.gov.uk), each whole grade is split into three bands. A grade 6 for example is split into 6-, 6 and 6+ with 6+ being the highest and 6- being the lowest. When considering the average grade for the year group, a value of positive three 3 would mean that on average

each student has achieved one whole grade (3 fine grades) higher than their target grade. For example, on average a student with a target grade of 5 would have achieved a grade 6. Inversely, should they achieve a negative 3, this would mean that each student has achieved one whole grade lower than their target grade. In this case a student with a target grade of a 5 would have achieved a grade of a 4.

Fine Grade	Representative Number
1-	1
1	2
1+	3
2-	4
2	5
2+	6
3-	7
3	8
3+	9
4-	10
4	11
4+	12
5-	13
5	14
5+	15
6	17
6+	18
7-	19
7	20
7+	21

Table 1

Due to the positive impact engagement is reported to have on attainment the correlation between the two continues to be of great importance for my research. In their review of literature relating to the impact engagement has upon attainment, Christenson et al (2012) state that '[s]tudents across grade levels who exhibit academic engagement behaviors... achieve at higher levels than their less academically engaged peers' (Christenson et al, 2012: 107). As such, for my study, I ensured that the initial survey considered the student's own perception of their engagement. The focus group interviews then considered in more depth what the students felt had impacted their engagement and I was then able to scrutinise the attainment results from last year and this year. The results from last year represented when students did not have access to iPads and the results from this year represented when students did have access to iPads. When looking at all of this together, for there to be a positive correlation shown between engagement and attainment, I believed that there needed to be evidence showing that students found the use of iPads to be something which increased their engagement and attainment results needed to have improved.

Survey Results Analysis

Initial Level of Engagement

The high number of survey responses provided me with a good insight into how this year group found having access to iPads as their primary digital learning device. The first question asked was whether they would consider themselves to be engaged with their learning. 193, 94%, of those that responded answered yes to this question. This matches the picture

described in the school context section previously discussed. The student body as a whole, due to the nature of the individuals attending our school, are likely to be engaged with their learning and wanting to do and achieve well. With such a large number saying that they would describe themselves as being 'engaged with their learning' it shows that this year group is one which is engaged with its learning. Therefore, the introduction of iPads for this cohort would need to be able to increase the level of engagement within students, the majority of whom already identify themselves as being engaged.

Usage

Only 48 students said that they used their iPad in all lessons. This equated to 23% and I would not expect all students to be using their iPad in every lesson. Staff have been directed to make use of them as and when they deem it to be necessary so as to enhance learning. There is no direct instruction that staff must use iPads in all lessons. To try and identify if there was a pattern between the amount iPads were used and engagement I asked students to identify the 3 subjects in which they used their iPads most and later which subjects were the most engaging. With regards to usage, the top four subjects identified were Computing, Geography, Science and History. Computing was identified by over half of the respondents as being the subject in which they use their iPad the most. PE, DT, Drama and Music were identified as the subjects in which the students used their iPads the least. When asked to consider which 3 subjects they found to be most engaging PE, DT, Drama and Science were the top 4 answers. The 4 subjects that were identified by most students as being least engaging were Maths, Geography, Art and RE. Although I was not specifically interested in which subjects students found to be most engaging, I was interested in trying to see if there was any correlation between subjects that were considered to be engaging and how much

use these subjects made of iPads. From these responses there appeared to be no real correlation between subjects that made more use of iPads and those which students found to be most engaging. Supporting this it was interesting to see that three of the subjects that were identified as having the iPad used in them the least were actually identified as being the most engaging. One from those identified as being least engaging was also identified as being one which has the iPad used the most. Regardless of the particular subject however there was still the possibility for lessons, activities and learning, to be more engaging. To see if this could be true, students were asked if they felt that iPads did make their lessons more engaging. 84% said that they felt this was the case. This appeared to support the idea that iPads can make individual lessons more engaging. Perhaps for those subjects which were identified as being least engaging, but with the most usage of iPads, they would be even less engaging if they did not make as much use of the iPad as they have been doing?

Engagement

To try and identify what it is about using an iPad that students felt improved their engagement, they were asked to identify why they felt that it would improve their engagement. This was an open question and I therefore coded their responses and put them into relevant categories encompassing their responses. The codes used can be seen in Table 2 below with the number of responses for each. They have been ordered into ascending order of responses so as to show which reasons were identified most:

Number of Responses	Code	Brief description of code
1	Speed - Fast Research or typing	Speed of finding things and typing things.
7	Miscellaneous	No answer given or not a fully defined answer i.e we all have one, they help to learn but no real reason or explanation why.
13	Practical - doing something i.e quizzes and use of apps	Actually doing something, completing a survey or producing a poster for example. Active
17	Access to Resources and efficiency of use	The ability to find resources, use the iPad to find things beyond the teachers explanations and powerpoints etc.
17	More independent	Can find things out on their own, carry out independent research.
20	Active and Interactive	Able to complete an activity rather than just listening and also collaborate with others in the class.
33	More fun	Not just typing or listening to a teacher, doing something, watching videos or listening to something. This could be using an app or a quiz as well.
50	Different way of learning, i.e. more interesting than writing	New and different way of working compared to primary and more suited to current ways of life, use particular apps.

Table 2

From reviewing these categorised responses, it would appear that the most common reasons for increased engagement was being active and students actually doing something with their iPads. The way in which they are used, where they are using the devices for an activity, which is different to just copying down notes and writing in exercise books. The code given “more fun” includes a lot of these sorts of activities and different uses of the iPad.

Interestingly, even assessments via different formats, such as an online quiz, were identified as being “fun”. It is possible that this occurs due to the way in which the user engages with iPads.

As already mentioned in this analysis, some subjects were identified as being less engaging than others and some made less use of the iPad than others. An open ended question was asked to try and identify whether or not students felt that the inclusion of the use of an iPad in their “less engaging” lessons would increase how engaged they felt in them. Again their responses were coded and placed into the appropriate groups.

Number of Responses	Code	Brief description of code
2	Speed - Fast Research or typing	Speed of finding things and typing things.
6	Not preferred way of working	i.e. a student prefers to write things down or it will depend on the task it is used for. In this instance, PE was sometimes used as an example where the use of iPads is not seen as being appropriate.
7	More independent	Can find things out on their own, carry out independent research.
8	Poor use	This is just researching or finding and completing a worksheet. Some of these responses identified that they would like to make use of other resources i.e. quizzes. It also includes students not using it properly and becoming distracted.
9	Practical - doing something i.e. quizzes and use of apps	Actually doing something, completing a survey or producing a poster for example.
13	Access to Resources and efficiency of use	The ability to find resources, use the iPad to find things beyond the teachers explanations and powerpoints etc.
16	Active and Interactive	Able to complete an activity rather than just listening and also collaborate with others in the class.

32	More fun	i.e. not just typing or listening to a teacher, doing something, watching videos or listening to something. This could be a fun app or a quiz as well.
51	Miscellaneous	No answer given or not a fully defined answer i.e we all have one, they help to learn but no real reason or explanation why.
62	Different way of learning, i.e. more interesting than writing	New and different way of working compared to primary and more suited to current ways of life, use particular apps.

Table 3

From these results it was interesting to see again that the fact that students felt that using their iPad would increase their engagement was because it is a different way of working. They clearly find the use of iPads in their lessons engaging and this is because they are then working in a different way and not just listening to the teacher and making notes, or making notes from a text book. It is worth noting that a large number of responses were however categorised as being “miscellaneous”. This could indicate that although students felt the use of their iPad in these lessons would improve their engagement, they were just not sure how or why this might be. This is an assumption however and due to the nature of the response there could be a wide number of reasons behind their opinion.

As the students had access to their iPad for homework as well I also wanted to see if the benefits with regards to engagement could be seen in terms of the completion of homework tasks. When asked if they felt homework that required the use of an iPad was more engaging than other homework, 72% identified that they did feel those homework tasks were more engaging. Students were then asked to consider whether they would find homework tasks to be more engaging if they were altered from tasks which did not require the use of an iPad,

to a task where they would be required to make use of an iPad. 65% responded to this identifying that they felt it would be more engaging if the same task were set but an iPad was required. The main reasons behind these responses appeared to be because of the different apps that could be used and access to resources. Another common reason was again due to it being different to just writing in an exercise book or answering on a worksheet. These themes have been consistent throughout the answers and appear to be why the students find the use of their iPad more engaging than not using it.

As a member of the computing department I had agreed on three apps we would definitely use within the department, and I also encouraged other members of staff to make use of these as well. These were Showbie, Socrative and Kahoot. As all students in the year group being surveyed would therefore have used these, if only in computing, I was interested to find out what, if anything they found to be beneficial with regards to them. I was curious about whether it was something that was very specific to these apps or if it was something that was more generic and could be applied elsewhere. For example, students could upload work for assessment to a shared area and teachers could provide them feedback. However, Showbie enables this but one of its selling points is that it makes it all a little smoother and easier to do. From reviewing the responses regarding what students liked most about Showbie, it was clear that they liked the fact work was being submitted electronically and so they did not have to print it. They also liked that they could upload it as soon as it was done and the interaction they could have with their teacher. It enabled them to get feedback, respond to feedback and continue to make progress once work had been submitted. This is enabled very effectively with Showbie and is not possible to do as easily using shared folders where students upload work. When considering Socrative, the students identified that the

fact there was an immediate response to their answers was one of the top things they liked about this app. They also identified that it was a more “fun” way of being assessed. This latter point also reflected a number of answers to earlier questions about why lessons which made use of iPads were more engaging. From these responses it would appear that assessments can be made more interesting if presented in a different way, not printed exam/assessment papers. Kahoot was the final app to have been considered in as much detail and this is another way of assessing students but in quite a different way to Socrative. The top responses identifying why students felt this app was so good again included that it was a different way of being assessed, the interaction with the class and for this app it was the competitive element of the product. Having used this in lessons myself it is clear to see that students do very much like the competitive element of this and they do all get very involved and quite animated when they are using it.

The questions about the apps used were included to give an insight into what exactly the students liked about using their iPads. From this it was clear that they liked the fact that things are instant, whether this be uploading work when convenient for them or getting an answer to a question in an assessment with some feedback. These can be offered and achieved elsewhere, and in other ways, but these apps, and the use of iPads, facilitates this very well. Also, the fact that students and teachers get to work and interact in a different way, and at a time that suits them, appears to feature as a reason why students felt the use of iPads improved their engagement. This assists the students’ management of their work in a more suitable way as well leading them to feeling more engagement with their learning. When considering Kahoot it was clear that the competitive nature of the students surveyed was really identified and this was found to be quite engaging for a large number of students.

Generally speaking, from these results, it would therefore appear that the use of iPads can facilitate teaching and learning in a number of different ways. They may also be considered to be more engaging due to this, but also due to them allowing new and different opportunities with regards to completing tasks, uploading work, giving and receiving feedback. If the main reason for the improved levels of engagement is due to them being “new” and “different” ways of learning, this benefit may not last for a great deal of time and could therefore be worth investigating further. However, although iPads are “new” now, but will not be forever, they will remain “different” to writing on printed worksheets, taking notes in exercise books from a text book or whiteboard permanently. It could be this fact, with a more technological generation perhaps, that is the more engaging factor.

Towards the end of the survey students were asked if, generally speaking and taking all their experiences into account, they felt that the use of their iPad had increased their engagement with their learning. There was a hugely positive response to this with 181, 88%, stating that they did feel the use of an iPad had led to them feeling more engaged with regards to their learning. As a follow up to this they were then asked if they thought that in lessons where there was the scope to do so, if their iPad was used more would this lead to those lessons being more engaging. 83% answered that they felt this was the case which could indicate that they would like the use of iPads to be increased in lessons, and for homework, as this would improve their engagement. What is interesting from these responses is that only 163 answered yes to a question about whether or not they felt that their level of engagement could be increased. This could imply that in a school where a large number of students are already engaged with their learning and do not feel they could be any more engaged, iPads could still be used to improve the level of engagement that the students believe they have.

Next Steps

After the first cycle of action research had been conducted, and the responses from students had been reviewed, I wanted to see if things could be improved further and then review what student perceptions were after this. I reviewed the survey responses and shared these with all staff, including my colleagues in the computing department and internal “coffee and croissant” training colleague. I made it clear how advantageous Showbie, Socrative and Kahoot had been perceived to be by students. I also shared with them how engaging the students had found the use of iPads, within their lessons and homework. I asked for staff to try even harder to make use of iPads within their lessons and for homework tasks. The “Coffee and Croissant” morning sessions continued to run with more of a focus on the three previously identified apps. There was also more discussion and collaboration with staff in the staff room, at staff meetings and briefings, and at other times when possible. I felt that staff were using iPads, and this had improved student engagement, but I wanted to see if this could be further improved. This was the second cycle of action research where staff were informed of the findings of the first cycle and there was a continued push for them to make use of and include iPads in the different tasks that they were setting. The focus all of the time on how these devices could potentially improve student engagement and to do this staff needed to make good use of them where and whenever possible.

So as to better understand how and why iPads might be improving engagement, and to see if the earlier identified trends held true, I spoke to 7 students in 2 focus groups. This was

after the second cycle of action research has been completed. The focus was to try and understand, in greater detail, what it was they liked about using their iPad and how the use of this tool could be made even more effective. I also tried to find out what it was about this device that led to them feeling that they had improved their engagement with their learning and if they felt that it had, or could, improve their attainment levels.

Focus Group Interview analysis

Impact on engagement

When I met with the focus groups I firstly wanted to identify if they felt that the iPad had affected their engagement. They all said that the iPad had increased their engagement. The reasons given in one group included access to resources, apps, the fact they are fun and that using them means there is a different approach taken i.e. it is not just reading from a textbook, answering things on worksheets etc. In the second group they all thought that they had improved their engagement, but all for the same reason, the independence the iPad had given them. This means that they could search things for themselves, find answers, upload work when they were ready to do so. One student in the first group identified that there were some technical issues that arose and that there might be distractions on the iPad which could have an adverse effect upon their engagement:

“I think it does but in a way it doesn’t as you could easily get distracted as you could have other apps on it and sometimes you have issues like apps don’t work”

However, across both groups it was clear that they had found the iPad to have been a resource which has increased their engagement with a number of different reasons underpinning this improvement.

I then investigated whether they felt that the use of iPads could be altered to enable them to feel even more engaged with their learning. All apart from one said that they felt this could be done. They commented that they wanted to be able to use them more in certain lessons where they had not been using them very much. Art was identified at this point, matching with the results of the survey where Art was identified as one of the subjects that uses the iPads the least. Interestingly, with regards to Science, they said that they would like to make less use of them. This was however due to the technical issues that they had experienced while trying to use them in Science. The one student who did not feel they could be used differently and increase their engagement any further said:

“Err, I don’t actually think so as I think already they are engaging enough for the student.”

So while she was not saying that she felt the iPad could be used differently to improve her engagement any further, she also identified that this was because they were already being used in such a way that led to her being engaged “enough” already.

With this in mind, and having reviewed the survey results, I was curious to find out in more detail if the students had an opinion about whether the iPads were beneficial because they were “easier” to use or because of the “engaging ways” in which they were used. This includes the use of apps, increased student participation, ability to upload work etc. When

considering this, all of the students agreed that iPads seemed to be a more exciting device to use and this was the reason behind it increasing their engagement in their learning. However, the issue of being easily distracted while using the iPad was raised again by one student who said:

“I think it’s easier to use an iPad because it’s like, I don’t know really but you can get distracted with games but you can use technology and they make life easier”

There was not really a conclusive answer here as I think that the students found it difficult to differentiate between the two and both were of benefit to them. They did find using iPads easier for a number of reasons but also more engaging for a number of reasons relating to the ways in which they were used.

From reviewing all of the responses relating to student engagement, I believe that students have seen the use of iPads to have improved their engagement in their learning. This is because of the variety of apps being used, the different and interesting ways in which iPads are incorporated in lessons and the fun and competitive elements that they bring to the students’ learning and lessons. Issues have been identified which have also caused the students some concerns and these have revolved around staff training, staff knowledge and staff use of the devices as well as other technical issues. A small research project carried out at Lewis and Clarke College in America in 2012 found something similar to what the students have identified here. The researchers wrote ‘I believe that a training session on iPad basics would have been beneficial to help jumpstart faculty use of the iPads.’ (Wainwright, 2012: 142). I had already organised bespoke departmental training for all members of staff at the beginning of the academic year in which this research project was carried out. It is clear from these responses however that this had not been enough. Therefore, to move this project

forward, more training is essential. Fortunately, these issues do appear to have been outweighed by the benefits that the students have seen with regards to these devices and so they were talking about how they have been used which has increased their levels of engagement.

Comparison to Netbooks/Laptops

As this was the first year we had provided students with access to iPads instead of netbooks I was curious to see if students thought that there might have been a difference between using an iPad instead of a netbook. Unfortunately I was not able to provide any students with access to both via the e-Learning scheme due to a lack of access to such devices and the way in which the e-Learning scheme works. As such I assumed that they had all used netbooks or laptops before at some point. When I asked the students what they thought was likely to be the difference between using the two different devices they were able to give well considered answers. In their opinion they felt there would be less distractions if they were using a netbook and less technical issues. One student consolidated this general feeling in her answer:

“there is not as many distractions on it, it’s harder to download games and apps and there are more technical issues with an iPad than a laptop”

Some of the technical issues identified were;

- The way in which students are able to use the schools Virtual Learning Environment (VLE). They felt there were a number of steps involved in accessing, saving, working on and re-uploading work that would not be present if being done on a netbook.

Our VLE is a Microsoft product and has presented some issues with regards to this so it was interesting to hear that this was an issue from the students point of view.

- the way in which Microsoft Word works on the iPads and how often work was not saved properly, or at all.
- The term “glitches” was used when considering this question as well. This is a term which refers to a device stalling and not really behaving in a way that it is expected to.

A number of the technical issues could be due to our inexperience as a school with regards to using iPads. As a result of this I have discussed with the school’s network manager and e-Learning support team to get them to investigate how to make the interactions, especially regarding our VLE, with certain products easier for our students.

It was also suggested that netbooks would be easier to use, and were more suited to a school setting, due to them having a keyboard. This indicated that a netbook would be beneficial for writing longer answers to questions and longer written pieces of work. If staff are setting tasks to be completed on an iPad which requires a lot of word processing this could echo the ideas of Ramirez (2015) where they have perhaps set a task which just considers the iPad as a direct swap for netbook or laptop. It could therefore be that staff need to more carefully consider the sorts of tasks being set. Alternatively, it could be that when we provide students with access to an iPad we also need to provide some sort of keyboard to assist them with typing longer written work.

However, in contrast to this answer, when asked what they had found to be the best thing about using the iPads the two main ideas were the apps available and the way they get to do things differently.

“I think the best thing about the iPads is the fact that some apps are almost like games, like Kahoot, when they are exciting likes games the information sticks in your head a bit more”

The students felt that the iPads were being used differently to the way in which netbooks might have been and this was advantageous. Considering the answers given, it appeared to be that the game like feel to certain apps, and the way that students can complete a task which does not feel like “a task”, is clearly beneficial. From the survey responses, the way in which assessments were being carried out was raised as a positive. Again in these interviews students identified Kahoot, a quiz and assessment resource, as one of the things they have most enjoyed. Another also mentioned a whiteboard app which allowed them to make their own annotations, colour it and make it interesting as a benefit to having the iPad. Allowing students to work on iPads instead of writing everything down in exercise books is also clearly one of the advantages of using these devices.

Issues identified

A number of issues were raised with regards to using an iPad for school. The common themes running through all of them appeared to be lack of teacher knowledge, technical issues and poor explanations given by the teachers when tasks were being set. When discussing some of these identified issues students became quite animated while giving their explanations. They are therefore clearly affecting how students perceive the use of their

iPads and are issues which need to be tackled if the use of iPads is to be successful within the school. The students all felt that if they had an issue with something that the teachers were not really able to support them, one answered a later question by identifying this and also suggesting a reason why this may be the case:

“I think it is as the teachers have laptops themselves so they don’t have iPads and make use of them and if they had training they would be better at using them”

It was extraordinary to hear that the students had identified there were issues with regards to using iPads and that they felt lack of teacher knowledge and training was the reason behind this. All staff had received training and there were on-going sessions throughout the year which they could attend. As I have already identified, it appears clear that for this project to be more successful in the future more staff training is required. With regards to staff making use of digital learning materials, research carried out in Holland across a number of primary and secondary teachers, identified that if teachers are going to make use of digital learning resources they ‘need to have sufficient ICT skills. Moreover, they also need to see that other teachers are using them’ (Kreijns et al, 2013: 223). I felt that there had been an appropriate amount of staff training made available. However, perhaps if teachers had attended more of the training available then they might have been able to make more and better use of these devices. Considering this, I met with the colleague that had been assisting with the delivery of a lot of the staff training. We felt that giving staff opportunities to come into our lessons, and other lessons taught by members of staff identified as making good use of iPads in lessons, might work as a way to enable staff to see iPads being used well. This could encourage them to make better use of iPads seeing how they can be used within different lessons.

Some of the other issues discussed were of a technical nature and included the possible distractions students had experienced which had negative effects upon their engagement. Due to a number of the apps and web services being used students had to create their own accounts, remember their usernames and passwords. If there was a problem with this for any reason, then it is between the third party application and the account holder to resolve. This left teachers, and the school's e-Learning support team, in a position where they may not be able to offer a great deal of help or support. As the students created their own accounts, and there is not a school central record of usernames and passwords, then any issues with the third party applications, due to most of them being free, can present somewhat of an issue in being resolved. This is not always the case but from reviewing the answers given by the students, regarding the issues that they have had, it would appear that this is causing a number of issues. With regards to the iPad distractions, playing games and AirDrop were highlighted issues. One student stated:

"I think that sometimes if you're playing games or someone else is playing games you can get a bit distracted from what the teacher is saying"

And another stated:

"I'd say air drop as sometimes in lessons everyone keeps dropping rude or weird pictures and you just want to get on with your work"

I believe that both of these really fall under how the iPads usage is managed by classroom teachers in lessons. This is something which needs to be tackled to ensure the smooth running and success of this project for the future. It could be that as staff are perhaps not as confident with the use of these devices as they should be, that this could again be tackled with some further training being put in place. Alternatively, it could be that some control or monitoring software may be required to enable more effective classroom management. This

would help to facilitate staff and students making better use of iPads to support the learning taking place.

Perceived Impact Upon Attainment

As impact upon attainment is an important aspect of this research project I was intrigued to find out what the students' perceptions of the impact the iPads had on their attainment. Due to the time constraints of this project the attainment focus was only with regards to computing. When asked whether they felt they had achieved a higher grade in computing due to the use of their iPad, the response was a positive one. The students identified that they felt the use of their iPad had led to an improvement in the attainment grade achieved in computing. The reasons for this were due to; the availability of apps, the new, different and varied ways in which revision could be undertaken, the ease with which research could be completed if necessary and also that the use of the iPad had led to them being more engaged with their learning so they were therefore able to achieve a better result. One student, agreeing with another who had already said she felt that her attainment grade in computing had been improved due to her having access to an iPad, said:

"I agree because with the different apps and revising but also when we use examples like file sizes etc we can type in and find out what they are and see what happens"

All responses to this question were similar to this and really brought together the basis of the investigation for this project. Due to the improved levels of engagement in their learning students seemed to do more work and work harder, during the year, and when revising. They have identified that this has therefore led to them achieving an attainment grade which they may not otherwise have achieved. This appeared to agree with the work of Northey et

al (2015) and seemed to show that, due to their improved levels of engagement, with tasks inside and outside of the classroom, the students believed that they had improved their attainment grades.

Attainment Results Analysis

Having already identified that iPads appear to have increased student engagement, I shall now consider the impact they have had on attainment. The simplest way to evaluate this would be just to consider the assessment results. By looking at the average percentages scored in the end of year assessment a comparison can be made for one cohort against another. In our school all students sit an end of year assessment in all subjects. At Key Stage 3 this covers everything that they have covered in the whole of Key Stage 3. There are also other key assessment points across the year when attainment grades have to be shared with parents. For staff to get these results the students sit assessments which cover all of the material they would have covered on that course up to that date. Because of this I am able to make a comparison from the July attainment results, obtained from the end of year assessment, and also the March results which were shared with parents as well.

Cohort	March Average Assessment Percentage	June Average Assessment Percentage	March Value Added (VA)	June Value Added (VA)
Year 7, 2014- 2015	73.62	82.73	-3.25	0.72
Year 7, 2015- 2016	80.4	79.55	-1.28	0.85

Table 4

From reviewing the data in Table 4 above, looking at just the average of the assessment percentages, it would appear that for the March results there was an improvement for the students in the cohort that had iPads. Attainment at the March assessment point appeared to have improved for the 2015-16 Year 7 cohort, those with iPads. However, the average percentage in the June assessment (which assesses the whole year of study, everything they would have been taught since the beginning of the year) for this cohort is slightly lower than the 2014-15 Year 7 cohort. This could imply that perhaps there was not a benefit to using iPads when considering attainment based on this raw attainment data. There is, however, more to be considered with regards these results. If you compare the VA results it can be seen that at both the March and June assessment points the 2015-16 Year 7 cohort actually performed better. At the March assessment point the 2015-16 Year 7 cohort achieved an average VA of -1.28 in comparison to -3.25 at the same point for the previous years' cohort. For the 2015-16 cohort this equates to students, on average, achieving a little less than half a grade below their target grade. The 2014-15 cohort in comparison, on average, achieved over a whole grade less than their target grade. In June, the 2015-16 cohort achieved an average VA of 0.85 in comparison to 0.72 achieved by the 2014-15 cohort. Both cohorts

achieved a positive average VA, however, the 2015-16 cohort achieved a higher average VA result. This means that they attained better assessment results, in comparison to their target grades, than the 2014-15 cohort achieved.

These results would therefore indicate that attainment results were better for the students in the 2015-16 Year 7 cohort, when the iPads had been introduced. Unfortunately, the evidence is not fully conclusive as the 2015-16 cohort did not achieve a higher average percentage at the June assessment point. However, they did achieve a higher average percentage result at the March assessment point. They were also able to achieve an improved average VA at both the March and June assessment points. It would appear therefore that, on average, this cohort made better progress than the year before in comparison to their target grades. Although each year group is different, and a number of things had changed from 2014-15 to 2015-16, one major change for the 2015-16 cohort was the introduction of iPads. Therefore, looking at these results, the consistently, although only marginally, improved average VA in 2015-16 could be due to the provision of iPads. It is possible that the students' increased engagement, due to the introduction of the iPads, assisted them in achieving these results. This would mean therefore that, in comparison to their target grades, they were able to achieve better results and more importantly that iPads had a positive impact upon student attainment.

Limitations

One of the limitations of this project was that I was unable to have a control group to allow for a comparison to be made with students in the same academic year. All students in the 2015-16 Year 7 cohort had to have iPads so any comparisons on attainment were based on comparing last years' results with this years' results. When considering how engaged they were, as the students had only experienced their learning with iPads, they were not able to make a completely accurate comparison of how their learning might have been if they had been using a netbook. As my attainment comparison is last years' cohort being compared to this years' cohort, some of the differences in results could also have occurred because of some of the changes in assessments, teaching styles and teacher understanding of the curriculum content. For example, within computing, last year was the first year that we had taught the new computing curriculum so everything was new to us. When considering this year's cohort, as we had already delivered the course last year and therefore identified what worked and what needed to be improved, we had made some changes to the course that was delivered. These alterations could have contributed in some way to the differences seen in the assessment results and the VA results. Having a control group may have given a fairer comparison, however perhaps not. The students in the control group would possibly have had quite a different curriculum and teaching experience. This would have then still made it difficult to make a completely accurate comparison. It would also have been incredibly difficult to justify this to parents joining the e-Learning scheme.

Another limitation is that the only feedback formally considered and reported on within this research project was that of the students. This was due to the importance given to the

experience of the students, as well as the lack of time to interview, or survey, staff in a formal manner and consider these results properly. I felt it important to stay focussed on student perceptions as they were making use of these devices and it was their engagement and learning experiences I was interested in. I did consider staff perceptions and opinions throughout the year and collaborated with many while ensuring the smooth running of this project. The ways in which I collaborated and listened to staff included the following; informally speaking to staff on a regular basis, delivering regular staff briefings, answering questions and assisting with any issues staff raised either informally or during training sessions, keeping a staff room iPad noticeboard active for staff to use as a training and discussion resource, planning and delivering “coffee and croissant” early morning iPad training sessions with a fellow colleague, working closely with the computing department to ensure the curriculum delivery and iPad use was appropriate. It may have been a suitable line of investigation to consider more formally what all staff felt about student engagement with regards to the use of iPads in lessons but due to the amount of time spent working, or speaking, with other members of staff I felt I had a good idea of the general opinions with regards to this throughout the year.

When considering attainment, I have considered this through the attainment results in one subject, computing. I chose to look at only one subject as this way, due to working in the department, I had a better understanding of what was being delivered. I was able to collaborate more easily with the other computing teachers to ensure that iPads were being used effectively. A more thorough and rigorous investigation into the impact upon attainment would have considered the differences in attainment results, and VA, across all subjects. This was not undertaken as a number of subjects had quite drastically altered their

assessments and it would not have been a like for like comparison in many cases. Even in computing the assessments had altered from last year but we were still assessing the same skills which meant that a similar comparison was being made. Just looking at results in one subject is of course a limitation, however, as reflected in some of the comments made by the students that were interviewed, it appears that the use of iPads across all subjects was not consistent. This could also therefore have influenced the results.

Chapter 4: Conclusions

Having reviewed all of the qualitative and quantitative data it seems quite clear that the students, generally speaking, do believe that the use of iPads has improved their level of engagement. Throughout this project I have discussed the number of different reasons that were provided to justify this. As there were several identified, it appears that these are what have led to students feeling more engaged with their learning. Ease of use has been identified as a contributing factor and this could be something as straight forward as an iPad being small, lightweight and easy to use therefore removing a barrier that was possibly there before when using netbooks. Speed was also identified, for example, if the students want to research something they can quickly turn the iPad on and find what they are looking for incredibly easily. This allowed them to move on to the next task and is likely to have improved the pace of their lessons, or just the time spent on the more trivial tasks such as loading a web browser. The different apps available were also identified as being something which have increased engagement. The competitive characteristics of several students being ignited by some of those used, such as Kahoot. Students also commented on the independence and freedom that they experienced due to some of the apps being used. Showbie, for example, allowed them to upload completed work at a time when it was convenient for them, get feedback, and not have to wait until the next lesson. These small improvements have all helped students to feel more engaged with their learning. Unfortunately there were some negative issues which were identified. These included some of the distractions which iPads presented, such as using Airdrop or downloading and playing games. Also, by some, the lack of teacher competence was identified as having a negative impact upon learning and engagement. This coupled with some of the technical difficulties

that were also identified, such as difficulties working with the school's VLE, appeared to provide a further hurdle for some of the students to overcome. Despite these issues, and even though the students could already be considered as being "engaged", the use of an iPad appears to have been able to enhance their engagement with their learning even further. It was interesting to see that despite some of the issues they experienced, the students still felt the iPads had been beneficial. This could have been due to the reasons identified in the findings by Furlong and Davis (2011). They identified that student success with regards to ICT can be down to formal use, access and training at home and school but a lot of improvement is seen with informal use and access to ICT. This could be within the classroom but is also very likely to be at home and in their own time without instruction. For the students involved in this action research project, it could be that one of the key attributes to iPads increasing their engagement, and attainment within computing at least, was down to the fact that they are able to have the iPads all of the time. This means that the project is really considering how effective it can be for students to have unlimited access to iPads. It is possible that if the project were considering the use of iPads in a different school setting, perhaps one where there is only a class set of iPads or where student access to them is much more limited, then there would have been a different outcome. Some of the issues that were identified could possibly have had a more detrimental effect upon student engagement, and attainment. It is likely that due to the freedom of access to these devices the students were more able to overcome the issues that they identified.

With regards to improving attainment, as the students were more engaged in their learning they could have been more likely to work harder, do more and therefore achieve better results. This echoes the work of Leach (2016) who commented on the positive link between

engagement and educational performance. The analysis of the attainment results in computing have shown that, when considering the average value added for the cohort being considered, there was an improvement. Although only small, the improvement seen showed that in comparison to their target grades students achieved better results. They made better progress than expected and it appeared that the iPads added value to the grades they were able to achieve. Unfortunately, the average percentage score achieved for the 2015-16 cohort was lower than that realised by the 2014-15 cohort. This meant that the evidence for the improvement made to attainment was not as strong as it could have been. However, due to the ability of the students (as identified by their target grades), considering their VA is likely to give a more accurate indication of the impact the iPads made. Having the improved VA result shows that students made more progress in comparison to what they were expected to have achieved.

Having undertaken this research I have valued the opportunity to reflect upon the impact providing students with access to an iPad as their primary digital learning device has had on their engagement and attainment. It has also been beneficial for me to be able to identify good practice, and areas for development, to improve student learning in the future. For example, after conducting the focus group interviews I met with the “coffee and croissant” training colleague I had been working with closely this year. We considered the student answers relating to staff training and how we could support staff further in making more effective use of iPads in their lesson. Reflecting on the findings reported by Kreijns (2013) we considered the idea of arranging lessons demonstrating good use of iPads in practice. These will be open for staff to come and observe so as to enable them an opportunity to see iPads being used well within a lesson. The aim of this will be so as to help enable them to

make more effective use of iPads in their own lessons. This is something that we are going to engage with next year, hopefully enabling staff to see iPads being used well and encouraging them to do the same. This research has confirmed for me the real importance of teacher training to ensure appropriate use of new technologies is facilitated. More training will need to be put in place for the future so that staff are more capable of making suitable and appropriate use of iPads in their lessons further enhancing the engagement and attainment of our students. If teachers are better equipped, with regards to how to make use of iPads and deal with the issues which can arise, they should be able to support students better when they find themselves facing difficulties. However, before moving forwards with identifying the particular training required I will again meet with the subject lead teachers. This collaboration at the start of the year was useful and would be valuable to revisit so as to identify where they all felt time and resources would be best invested with regards to teacher training. Considering the school's e-Learning scheme, and the device being provided, I believe this research has shown that iPads are an effective and suitable learning tool. They are not without their issues, as have already been identified, but I am confident that they have improved both student engagement and attainment. I felt that providing the students with access to their iPads, as early as possible, was beneficial as it enabled them to make use of them independently and informally. They were then able to benefit from being more confident in how to use and engage with them rather than just receiving them in September at the start of the new school year. Moving forwards with our e-Learning scheme I shall again recommend the procurement of iPads for those joining the scheme. I shall also ensure that they are available for the students as early as possible. One alteration I am carefully considering would be the inclusion of some sort of keyboard. One of the main advantages, identified by the students, of a netbook over the iPad was the availability of a keyboard. As such, I feel it is worth considering the inclusion of a keyboard for those students

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

joining the scheme in the future. Before making this decision I shall consult Lead Teachers to identify their opinions with regards to this. Overall I believe that iPads have made a valuable contribution to the teaching and learning delivered and experienced in our school. I would advise others to consider iPads as a digital learning device but would suggest that they ensure staff are well prepared and consulted before moving forwards with this suggestion. I would also recommend that they allow students to have access to their iPad at school as well as at home. This unlimited access, I believe, is of great benefit and will assist in the improvement of student engagement, and also therefore, attainment.

Bibliography

Apple (2016) *More A-Ha Moments*, [Online] Apple.com. Available from <http://www.apple.com/uk/education/> [Accessed 10 July 2016]

Baker, B. (1999) *What Is Voice? Issues of Identity and Representation in the Framing of Reviews*, *Review of Educational Research*, 69 (4), 365-383

Beauchamp, G. Burden, K. and Abbinett, E. (2015) *Teachers learning to use the iPad in Scotland and Wales: a new model of professional development*, *Journal of Education for Teaching*, 41 (2), 161-179

Bragg, S. (2007) *'But I listen to children anyway!'*—teacher perspectives on pupil voice, *Educational Action Research*, 15 (4), 505-518

Buijs, M. and Admiraal, W. (2013) *Homework assignments to enhance student engagement in secondary education*, *European Journal of Psychology of Education*, 28 (3), 767-779

Carini, R. Kuh, G. and Klein, S. (2006) *Student Engagement and Student Learning: Testing the Linkages*; *Research in Higher Education*, 47 (1), 1-32

Christenson, S. Reschly, A. and Wylie, C. (2012) *Handbook of research on student engagement*, New York: Springer Science & Business Media.

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Department for Education (2013) *National curriculum in England: computing programmes of study* [Online] <<https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study>> [Accessed 09 August 2016]

Ditzler, C. Hong, E. and Strudler, N. (2016) *How tablets are utilized in education*, *Journal of research on Technology in Education*, 43 (3), 181-193

Dockter, J. Haug, D. and Lewis, C. (2010) *Redefining Rigor: Critical Engagement, Digital Media, and the New English/Language Arts*, *Journal of Adolescent & Adult Literacy*, 53 (5), 418-420

E Learning Foundation (2016) *Our vision & beliefs* [Online] Available from <<http://learningfoundation.org.uk/about/our-vision-and-beliefs/>> [Accessed 09 August 2016]

Edutopia (2008) *Why Integrate Technology into the Curriculum?: The Reasons Are Many* [Online] < <http://www.edutopia.org/technology-integration-introduction>> [Accessed 09 August 2016]

Falloon, G. and Khoo, E. (2014) *Exploring young students' talk in iPad-supported collaborative learning environments*, *Computers & Education* 77, 13–28

France, D. Welsh, K. Powell, V. Mauchline, A. Park, J. and Whalley, W. (2015) *Conclusions and recommendations*, in France, D. Welsh, K. Powell, V. Mauchline, A. Park, J. and Whalley, W. (2015) *Enhancing fieldwork learning using digital technologies*. [Online Book] Available from < <http://ezproxy-prd.bodleian.ox.ac.uk:2142/book/10.1007%2F978-3-319-20967-8>> [Accessed online: 22 July 2016]

Frey, N. Fisher, D. and Lapp, D. (2015) *iPad Deployment in a Diverse Urban High School: A Formative Experiment*, *Reading & Writing Quarterly*, 31 (2), 135-150

Furlong, J. and Davies, C. (2012) *Young people, new technologies and learning at home: taking context seriously*, *Oxford Review of Education*, 38:1, 45-62

Gliksman, S. (2012) *iPad in Education For Dummies (1)* [Online] For Dummies, Somerset, US. Available from: < <http://site.ebrary.com/lib/bodleian/reader.action?docID=10641827>> ProQuest ebrary. [Accessed 21 July 2016].

Groundwater-Smith, S. and Mockler, N. (2016) *From data source to co-researchers? Tracing the shift from 'student voice' to student-teacher partnerships in Educational Action Research*, *Educational Action Research*, 24 (2), 159-176

Hastings, S. (2014) *Use of technology in the classroom increasing, evolving* [Online] <<http://www.faronics.com/news/blog/use-of-technology-in-the-classroom-increasing-evolving-25/>> [Accessed 09 August 2016]

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Ofqual, (2015) *Grading New GCSEs from 2017* [Online]
<https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/537147/Postcard_-_Grading_New_GCSEs.pdf> [Accessed 09 August 2016]

Hazel, C. Vazirabadi, E. and Gallagher, J. (2013) *Measuring Aspirations, Belonging, and Productivity in secondary students: Validation of the student school engagement measure*, *Psychology in the Schools*, 50 (7), 689-704

Henderson, S. and Yeow, J. (2012) *iPad in Education: A case study of iPad adoption and use in a primary school*, *Proceedings of the 45th Hawaii International Conference on System Sciences*, Hawaii (2012) 78-87

Henrie, C. Halverson, L. Graham, C. (2015) *Measuring student engagement in technology-mediated learning: A review*, *Computers in Education*, 90, 36-53

Hsu, S. (2011) *Who assigns the most ICT activities? Examining the relationship between teacher and student usage*, *Computers & Education*, 56, 847-855

Hu, S. and Kuh, G. (2002) *BEING (DIS)ENGAGED IN EDUCATIONALLY PURPOSEFUL ACTIVITIES: THE INFLUENCES OF STUDENT AND INSTITUTIONAL CHARACTERISTICS*, *Research in Higher Education*, 43 (5), 555-575

Huberman, A. M. & Miles, M. B. (2002) *The qualitative researcher's companion*: SAGE Publications Ltd doi: 10.4135/9781412986274

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Hutchison, A. Beschorner, B. and Schmidt-Crawford, D. (2012) *Exploring the use of the iPad for literacy learning*, *The Reading Teacher*, 66 (1), 15–23

Jewitt, C. Clark, W. and Hadjithoma-Garstka, C. (2011) *The use of learning platforms to organise learning in English primary and secondary schools*, *Learning, Media and Technology*, 36 (4), 335-348

Judge, M. (2013) *Mapping out the ICT integration terrain in the school context: identifying the challenges in an innovative project*, *Irish Educational Studies*, 32 (3), 309-333

Kreijns, K. Frederik Van Acker, F. Vermeulen, M. and van Buuren, H. (2013) *What stimulates teachers to integrate ICT in their pedagogical practices? The use of digital learning materials in education*, *Computers in Human Behavior*, 29, 217–225

Lawson, M. Lawson, H. (2013) *New Conceptual Frameworks for Student Engagement Research, Policy, and Practice*, *Review of Educational Research*, 83 (3), 432–479

Leach, L. (2016) *Enhancing student engagement in one institution*, *Journal of Further and Higher Education*, 40 (1), 23-47

Lewis, A. Huebner, E. Malone, P. and Valois, R. (2011) *Life Satisfaction and Student Engagement in Adolescents*, *Journal of Youth and Adolescence*, 40 (3), 249-262

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Livingstone, S. (2012) *Critical reflections on the benefits of ICT in education*, Oxford Review of Education, 38 (1), 9-24

Marshall, C. and Rossman, G. (2014) *Designing qualitative research*, Los Angeles: Sage

Miller-Day, M. Hecht, M. Krieger, J. Pettigrew, J. Shin, Y. and Graham, J. (2015) *Teacher Narratives and Student Engagement: Testing Narrative Engagement Theory in Drug Prevention Education*, Journal of Language and Social Psychology, 34 (6), 604-620

Northey, G. Bucic, T. Chylinski, and M. Govind, R. (2015) *Increasing Student Engagement Using Asynchronous Learning*. Journal of Marketing Education, 37 (3), 171–180

OfQual. (2015) *Grading New GCSEs from 2017*, [Online] <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/537147/Postcard_-_Grading_New_GCSEs.pdf> [Accessed 09 August 2016]

Ozanne, J. and Saatcioglu, B. (2008) *Participatory Action Research*, Journal of Consumer Research, 35 (3), 423-439

Peluso, D. (2012) *The fast-paced iPad revolution: Can educators stay up to date and relevant about these ubiquitous devices?* British Journal of Educational Technology, 43 (4), 125-127

Popping, R. (2015) Analyzing Open-ended Questions by Means of Text Analysis Procedures. Bulletin de Méthodologie Sociologique, 128 (1), 23-39

iPads in action: An investigation into how the use of iPads can help improve Year 7 student engagement and attainment in a secondary grammar school

Powell, S. (2014) *Choosing iPad Apps With a Purpose. Aligning Skills and Standards*, TEACHING Exceptional Children, 47 (1), 20–26

Ramirez, E. (2015) *Review: iPad*, *Journal of the Society of Architectural Historians*, 70(4), 535-537

Rosenthal, M. and Eliason, S. (2015) *"I Have an iPad. Now What?" Using Mobile Devices in University Physical Education Programs*, *Journal of Physical Education, Recreation & Dance*, 86 (6), 34-39

Selwyn, N. (2010) *Schools and Schooling in the Digital Age : A Critical Analysis* [e-book]
Available from <<http://oxford.ebib.com/patron/FullRecord.aspx?p=574652>> [Accessed 09 August 2016]

Sun, J. and Rueda, R. (2012) *Situational interest, computer self-efficacy and self-regulation: Their impact on student engagement in distance education*, *British Journal of Educational Technology*, 43 (2), 191-204

Sutton, C. Harding, J. and Elliott, J. (1978) *What is Action-Research in Schools*, *Journal of Curriculum Studies*, 10 (4), 355-357

Tabor, S. (2016) *Making mobile learning work: Student perceptions and implementation factors*, *Journal of Information Technology Education: Innovations in Practice*, 15, 75-98.

Umar, I. and Jalil, N. (2012) *ICT skills, practices and barriers of its use among secondary school Students*, Procedia - Social and Behavioral Sciences 46, 5672 – 5676

Vaughn, S. Shay Schumm, J. and Sinagub, J. (1996) *Focus Group Interviews in Education and Psychology*, Thousand Oaks, CA: SAGE Publications Ltd

Wainwright, K. (2012) *Putting iPads in the hands of faculty*, Proceedings of the ACM SIGUCCS 40th annual conference on Special interest group on university and college computing services, 139–144, New York, NY: ACM

Wilkinson, J. and Kemmis, S. (2015) *Practice Theory: Viewing leadership as leading*, Educational Philosophy and Theory, 47 (4), 342-358

Womack, S. (1997) *What Action Research Is: A Review of the Literature* [Online] Washington, DC: ERIC Clearinghouse on Teacher Education. ERIC Document Reproduction Service, ED 414 255. Available from: < <http://files.eric.ed.gov/fulltext/ED414255.pdf> > [Accessed 16 August 2016]

Wood, S. Jocius, R. (2014) *Beyond Fun and Games*. The Reading Teacher, 68 (2), 129-133

Appendices

Appendix A: Pedagogy Wheel. Rosenthal and Eliason, 2015

The figure originally presented here cannot be made freely available via ORA because of copyright. The figure was sourced at Rosenthal, M. and Eliason, S. (2015) "I Have an iPad. Now What?" Using Mobile Devices in University Physical Education Programs, *Journal of Physical Education, Recreation & Dance*, 86 (6), 34-39

Appendix B: Questions from Student Survey

Would you describe yourself as being someone that was "engaged" in their learning?
Do you use your iPad in all of your lessons?
Which 3 lessons do you think make most use of your iPad?
Which 3 lessons do you find to be most engaging?
Which 3 lessons do you think make least use of your iPad?
Which 3 lessons do you find to be least engaging?
Do you find lessons that make use of the iPad more or less engaging than those that do not?
Why do you think this?
In the lessons that you do not use your iPad, do you think that making use of your iPad would lead to those lessons being more engaging?
Why do you think this would lead to those lessons being more engaging?
Do you need to make use of your iPad for all set homework?
Do you find that homework which requires the use of your iPad to be more engaging than those that do not?
Do you think that if homework were to be set where the use of your iPad was required the homework would be more engaging?
Why do you think it would be more engaging?
In your lessons have you used Showbie?
If you have used Showbie during lessons or for homework, what did you think was the best thing about it?
If other, please explain what it was.
In your lessons have you used Kahoot?
If you have used Kahoot during lessons or for homework, what did you think was the best thing about it?
If other, please explain
In your lessons have you used Socrative?
If you used Socrative during lessons or for homework, what did you think was the best thing about it?
If you chose other for Socrative, please explain
If you have said yes to any of the last three questions, which (if any) had the most impact on your engagement?
If you were able to identify one that had the greatest impact on your engagement, could you explain why?
How else are iPads used in your lessons?
If different please specify
Which of these did you find to make you most engaged within your lesson/homework task(s)
Tell us about the different apps
Generally speaking, do you think the use of iPads in your lessons and for homework tasks has increased your engagement in your learning?

Would you like iPads to be used more in lessons and for homework and do you think this would increase your engagement if it was?
Do you think your engagement in your learning could be increased even further?
Can you think of anything else that could increase your engagement in your learning?
On a scale of 1-4, 1 being not at all engaged and 4 being as engaged as possible, how engaged would you say you are_With regards to completing homework?
On a scale of 1-4, 1 being not at all engaged and 4 being as engaged as possible, how engaged would you say you are_On average in all of your lessons?
On a scale of 1-4, 1 being not at all engaged and 4 being as engaged as possible, how engaged would you say you are_Regarding your learning?

Appendix C: Questions and Responses from focus group interviews

Do you think iPads have affected your engagement in lessons?	Code
EM – I think they have cause it makes it like more fun, its not just listening to teacher, well yeah you do have to. CW – I think they make it more engaging as well as your not just listening or copying off a whiteboard but using your iPad to research things and find different resources and different files. CH – You are not just like writing stuff down all the time but creating different Powerpoints, well different things and different stuff. DH – I think it does but in a way it doesn't as you could easily get distracted as you could have other apps on it and sometimes you have issues like apps don't work. Would netbooks or laptops have affected your engagement? MR – Yes, because it gives us a like I don't know how to... you can find stuff out for yourself without having to ask a teacher and it helps your independent skills. AH – I think it does also in a good and bad way as you can look things up on the internet and have new stuff without having to ask a teacher but also you can get distracted on things. HM – Yes because they give us independence and we don't have to ask the teacher for every answer we get.	Fun Different Approach Different approach and Resources Apps Independence Independence Independence
Do you think you would have answered differently if I had been asking about the use of netbooks or laptops?	
DH – I think they would have because there is not as many distractions on it, it's harder to download games and apps and there are more technical issues with an iPad than a laptop. EM – I think it would be easier with a netbook as when downloading files from the portal you can't just click and download it you have to go through a process. On a netbook it would be more like a school thing with less distractions. CW – I think I would have preferred a netbook as when you are using them it's not just on a screen but you would have a separate keyboard and when downloading it is easier to use and see things. CH – I think netbooks would be easier to use as when you use Word on iPads it can cause issues as not save and there are a lot of glitches. MR – I think we wouldn't of answered differently as you could search the same thing up on an iPad as you could on a netbook and still get the same answer.	Less Distractions Netbook Easier, iPad technical issues Netbook more suited to typing iPad technical issues Same Same iPad distractions

AH – I think it would be the same in good terms but I don't think it would be the same as you wouldn't get distracted on a netbook as you do with an iPad and games. HM – Yes because again you wouldn't get distracted also the iPads are easier to use so you can print easier.	iPad distractions
So, is there a difference between the ease of use and the exciting and engaging elements? i.e you have spoken about using Word, is this the most engaging way of using technology?	
DH – I think when you use iPads it is more engaging as you can use different apps where as on a laptop you only have Word and Excel. MR – I think it's easier to use an iPad because it's like, I don't know really but you can get distracted with games but you can use technology and they make life easier. They make work easier not life. AH – I think that iPads are a bit more exciting than netbooks as you don't really use a netbook for fun and the iPad has different things but on a netbook you have to go on a website but if the Internet is not working then you can't really use it as much but on an iPad you can still go on Microsoft Word and things like that. HM – The iPads are better as you can still use more exciting things and you can do all the things on a netbook and you have more exciting things like apps.	Apps Easier to use iPad distractions Different approach Easier to use
Is there more freedom with iPads?	
DH - With an iPad you get more freedom app wise to do your work on however on a laptop you don't spend half a lesson downloading apps, with internet issues. So when it works smoothly it is better but as it is all cloud based there are issues with this. In Science we don't really use the right tools as the passwords and usernames are incorrect but the teachers say it is correct. CW – It's when we tell the teachers but they say no it's got to be done on this anyway, so we might e-mail "educake", the teachers aren't really that helpful with resolving these issues. DH – I have trouble using the TinyPDF app so opening PDFs is a bit of an issue. CH – our English teacher wanted us to use Active Learn but we can't access this on our iPads and Puffin Academy was not working either so the only way to access this was on a laptop or desktop but if you did not have these you could not do the homework.	Technical Issues Technical Issues Technical Issues Technical Issues
So it's technical settings that are causing issues – if they were working right then what would you say?	
DH – if they were right it would be more engaging as we could just get on with it.	Technical Issues Technical Issues

CW – it would stop the teachers getting angry as they say we should have e-mailed them but we couldn't.	
Is it just an issue within Science then?	
DH – it is a problem in most subjects. However it is not in Computer Science however as the teacher explains it all clearly CW – there are instructions given. DH – we think that it is as the teacher knows how to use the device. Some teachers refer to them as netbooks! If we have a problem they don't know what to do. CW – Normally they will put something on the whiteboard and say "Student Portal and English" then say "find what you need to find and you know what we are doing" but we don't. The teachers don't explain things to us. DH – some teachers have multiple files and this is also confusing.	Teacher Knowledge Teacher Knowledge Teacher Knowledge Poor Explanations Poor Explanations
Would this have been improved with the use of a netbook?	
EM – I think the teachers need to know what to do with a certain app. Because the iPads are new they don't know how to use them. If something isn't working they don't have a plan B. DH – I think they are used to netbooks and they don't know that iPads work differently or how to use them.	Teacher knowledge Poor Explanations Technical Issues
Have you experienced any issues?	
MR - Sometimes you don't have enough storage and when your updating your iPad it sometimes carries on into a lesson so you can't use it then and sometimes you can't use Wi-Fi so you can't use it and search stuff. AH – on iPads they run out of battery quite quickly, you could really have 100% at the start of the day and none by period 2. Also the storage, sometimes it doesn't save properly as you don't have enough storage but you don't really know. HM – Same things but erm when the Internet goes down you can't really access Word documents or print things.	Storage Technical issues Technical issues Storage Technical issues
Do you think it is the iPad themselves or the way in which they are used that has affected your engagement?	
CW – I think it is the way they are used because it all depends on the apps you have on them. In school we have lots of apps and if they are used properly it is exciting and new and they can all be used in different ways. EM – I agree with CW, it is the way they are used as we have things like Kahoot and it makes things more interesting, engaging and exciting and if we did not have Kahoot we would just be answering questions on Word or something. CH – I agree, it is the way they are used. On the iPad we have different apps which you don't have on the netbook or desktop and it makes the lesson more exciting.	Way used Apps Way used Apps Way used Apps Technical issues

DH – I agree with the others but it is the iPads themselves as there is constant updates and apps change. You just catch up with what to do on the app then you have to start from scratch. It is bad you don't know how to use them then but good as there are updates which make them better. MR – I think it's the way they are used because some people might use them for different purposes, purposes they should be used for but they are used rightly in lessons and if we had netbooks it would be completely different engagement. AH – Erm, I think that it's they way that they are used that kind of affects your engagement the most both in good ways and bad ways but if you use them to play games then you don't use them right but if you use Word and Powerpoint and use then the right way then you can product nice work. HM – I think it's how the iPad is used as you have lots of creative apps and you get some new apps from tech support, like the new maths games. MR – I think that with helping to learning you can download educational apps and it could be a new way of students learning and they might find that working with apps is a new way for them to learn.	Way used Different Approach Way used iPad Distractions Way used Apps Apps
Why do you think this?	
CW – it all depends on the device as well as if it is an old device you won't want to use it but new devices have more of an appeal. CH – You can get some apps on an iPad that you can't get on other devices and we use these in lessons quite a lot and it makes them more exciting and more interactive. I think it is I the interactivity that makes them most engaging. EM – I think it is kind of like the interactivity, more exciting, the competition. You want to get the answers right it gives it more... like, you want to do well, learn more and get the answers right so next time you can win. DH – I think it is quite engaging as you do use different apps for different subjects. The fact you aren't using the same app over and over again makes it more fun. The variety is good. MR – I think it's the way they are used because they could be used incorrectly but also correctly and when correctly there will be more engagement than with netbooks as there will be different ways to learn.	Modern Apps Interactivity Interactivity Competition Apps Variety iPad distractions
What have you found to be the best thing about the iPads?	
CW – Erm, I think the best thing about the iPads is the use of them. If we didn't use them we'd just be looking in text books and it would be boring.	Different approach Apps

EM – Erm, I think it is just like apps that you can download but not anywhere else, they make it more exciting. On iPads there are certain things you can't do on netbooks or laptops. The best thing about them is the variety of apps you can use to help with your learning. DH – I think the best thing about the iPads is the fact that some apps are almost like games, like Kahoot, when they are exciting likes games the information sticks in your head a bit more. MR – The Apps that you can download. AH - I think kind of like the creative bits of it as in lessons you can take a whiteboard and take different colours and make it colourful and more fun than it would usually be. HM – In general the apps but also the way it is used in general as its fun. It is better to look at a screen rather than write everything as it is good to use technology sometimes.	Different approach Apps Apps Different approach Apps Different approach
Have you found that the iPads have had a negative affect on your engagement in any instances?	
DH – Yeah, technical problems really in a lot of subjects, logging in and with student portal and puffin academy for example. EM – I agree that Puffin academy has been an issue as we use it in French and at the moment it is not working so we have to find alternative routes and use the active book. Things like this mean it takes a bit longer to get to the lesson content. CH – yeah, I mean, in French we use Puffin Academy a lot and it doesn't work which is really annoying. CW – with Puffin Academy or the Internet and we are doing research or work and we can't use the Internet they think we are avoiding to do the work but we aren't. MR – The Internet connection cause sometimes it can be a little bit poor and you can't access documents on the iPad. AH – Erm I think that sometimes if you're playing games or someone else is playing games you can get a bit distracted from what the teacher is saying. Sometimes you might end up with more homework as you will also have to finish what you should have done in class. HM – I'd say air drop as sometimes in lessons everyone keeps dropping rude or weird pictures and you just want to get on with your work.	Technical Issues Technical Issues Technical Issues Technical Issues Technical issues iPad distractions iPad distractions
Is there a particular are lesson when this happens?	
AH - It happens in lessons when we aren't set something active and everyone just gets a bit bored. HM – Yes like learning vocab, everyone gets bored and starts airdropping stuff. Like giraffes and some weird pictures.	Inactive Inactive Inactive

MR – but also there can be airdropped stuff that you need to catch up that you can't access and your friends can, or a picture of vocab.	
Do you think iPads could be used differently so as to improve your engagement even further?	
CW – maybe use them a bit more in certain lessons as we are still copying out of textbooks in some lessons. i.e. go to text book 1, page 331 rather than using a device we already have that could have them on. EM – I think erm yeah we could use them more in certain lessons like in art, we just look at the whiteboard and have to discuss certain things. Maybe in art we could use them to look up facts, find examples, use them to find things and get more information. DH – I agree but I also think in lessons like in Science where we use it a lot we could actually use it less as as when you use the same thing over and over again it gets boring. CH – I agree with CW, in Maths we barely ever use our iPads and we copy lots out of text books but we could use our iPads more for this and make it more fun. MR – Err, I don't actually think so as I think already they are engaging enough for the student. AR – I think that you could do somethings like disable air drop but I don't think that would be useful as it would stop people dropping funny photos but also dropping useful things as well. HM – I think the air drop as well, that it only lets documents and school related images only rather than funny pictures and maybe the updates as sometimes they take a long times especially when you're in a lesson and you need to use your iPad.	Yes Different approach Yes Different approach Yes Used too much Yes Different approach No Yes Remove distractions Yes Remove distractions
Do you think that you have improved the attainment grade you have achieved in computing due to the use of the iPad?	
CW – I think using iPads has boosted up our confidence in knowing what we are going to get as we can use different apps to revise and have confidence in what we are learning. CH – I agree in the fact that we have such a range of apps we use to revise it is not just writing things down on paper but a more fun and interesting way of revising. EM – I agree because with the different apps and revising but also when we use examples like file sizes etc we can type in and find out what they are and see what happens. DH – I think because computing is always based around the iPads you get to learn a lot more about them and how to use apps, revise on those apps, because we use a wider variety of different apps, like Showbie it is easier to submit homework and stuff so you don't stressed out. I think it is better as you have a time period as you can submit the work, see the teacher comments and improve it.	Confidence Apps Apps Different approach Apps Apps Teacher knowledge Different approach

MR – Err, yes cause sometimes it makes the lesson a little bit more interesting and it can make the student a little more engaged with the work on an iPad instead of just writing it down in a book. AR – I also think that erm you can look, say computing, if you have to write some code and if you didn't know how to do it then the teacher might not be able to help everyone so you can look up how to do certain tasks. HM – Yes because sometimes people have trouble with the computers so sometimes it's just a bit easier to use the iPads because they are handy and easy to get the things you need up on the screen.	More interesting Different approach Different approach Different approach Ease of use
Any final thoughts?	
CW – the final issue is teacher training as they don't know what to do with iPads all of the time. DH – also it is the fact that teachers don't really understand iPads at all EM –I think it is also the apps, passwords and usernames and technical things like that. CH – I think it is as the teachers have laptops themselves so they don't have iPads and make use of them and if they had training they would be better at using them.	Teacher knowledge/training Teacher knowledge/training Technical issues Teacher knowledge/training