___

An evaluation of the *ABC PocketPhonics* application as a resource for teaching phonics to underachieving year 3 pupils.

___

Joe Keher

February 2012

—

Abstract

This research seeks to evaluate the effectiveness of the iPad application, *ABC Pocket Phonics* as a resource for teaching phonics to underachieving year three pupils. This was achieved by assessing pupils' current working levels; delivering three ten minute phonics sessions using *ABC Pocket Phonics*; and finally, by re-assessing the pupils' and establishing their progress. The data showed that the pupils' phonological knowledge improved significantly after the iPad sessions. This data was compared with the learning progress made in-class, using traditional resources. It shows that, given the same average learning time per sound, the pupils made more progress using *ABC PocketPhonics* than in their ordinary lessons. The teaching and learning advantages, limitations, and potential applications of this resource are identified and explored.

Introduction and context

The use of tablet computers, such as the iPad, as a resource for teaching and learning in literacy is becoming increasingly popular in primary schools in the USA and UK (Warschauer, 2011; Friend, 2012). In the near future, it seems likely that tablet PCs will follow the trend of PCs, interactive whiteboards and laptop computers; becoming a commonplace resource in the classroom. However, there is very little research that focuses on the effectiveness of tablet computers or their software in an educational setting. The purpose of this paper is not only to evaluate a learning resource, but to consider the suitability of this resource as one that may, in the near future, be a fundamental element of the teaching and learning of early reading across our education system.

This research was conducted in two schools that are both based in the North West of England. School A has 403 mixed gender pupils, 14 teaching staff and 14 classroom support staff. The percentage of pupils eligible for free school meals is very low and pupils attend from an advantaged socio-economic area. School B has 156 mixed gender pupils, 7 teaching staff and 4 classroom support staff. The proportion of pupils eligible for free school meals is above average. Both schools use interactive whiteboards in all

classrooms and pupils have access to at least 2 computers per classroom. Please see appendix 1 for screen shots.

Literature Review

Research into the general effectiveness of technology in enhancing teaching and learning in the classroom is extensive. Neil Selwyn's (2011) publication summarises and considers the key issues and opinions surrounding education and technology. He suggests that "most people in education consider digital technology and learning to be inextricably linked" (2011, 66). This argument is supported from various perspectives such as the behaviourist, cognitive, and constructivist[1]. Unfortunately, it is widely argued (Bell *et al*, 2009; Cuban *et al*,2001; Shapley *et al*, 2010) that due to a lack of pedagogical knowledge and understanding, and other circumstantial barriers, the integration and application of technology in learning environments falls below proponents' expectations.

Hew and Brush's study (2007) regarding the integration of technology into the education system, provides an excellent contextual review of the benefits, limitations, and pedagogical issues associated with ICT systems in the classroom. This study also identifies current knowledge gaps and makes recommendations for further research, where they touch upon the use of hand-held digital devices in the classroom. They argue that regardless of educators opinions, if research demonstrates that digital resources (such as the iPad) can be used to "enhance or reinforce skills, enrich current topics, or extend ideas beyond current levels", then these should be developed and utilised as extensively as any other commonplace teaching resource or strategy (Hew & Brush, 2007: 245). With this established, Hew and Brush's recommendations were that more research was needed to determine the effectiveness of technology in education, and its potential applications.

---

[1] See Selwyn (2011, 66-76) for full summary of these perspectives.

Using databases such as Academic Search Premier, JSTOR, and Web of Knowledge, I conducted a comprehensive literature search that included several combinations of key words such as: "iPad", "technology" "phonics", "tablet PC", "reading", "learning", "primary" and "Classroom". Although there are some non-empirical studies and opinion papers[2], the search revealed no previous research on the iPad or its applications (apps) in the proposed setting. However, Maynard's research (2010) investigating the impact of e-books on young children's reading habits was highly relevant to the development of this research project. Maynard found that the reluctant readers were motivated to read by the e-books, and were more actively engaged with the digital texts than their printed counterparts[3]. This study was among the first to demonstrate the benefits of learning to read using hand-held, digital devices. Although the research provided significant indications; the study was too generalised to make any substantiated recommendations as to the potential of e-readers in an educational context.

In order to be able to evaluate the *ABC PocketPhonics* app in the proposed context, it is essential to consider established theories and accepted strategies in quality phonics teaching and learning approaches. Although Lingard's text (1997) on good practise in phonics is dated, it is a highly cited text within its field. The text provided me with an excellent foundation of knowledge, upon which to begin making considerations of what constitutes high-quality phonics teaching and learning. This was a crucial element to the research as a sounds knowledge of current phonological teaching theory is needed to effectively evaluate the app, and in order for the data to be reliable. More recent texts such as Goouch (2009) and Pennington (2009) allowed me to apply current knowledge and thinking in the teaching and learning of phonics to the analysis and exploration of my

---

[2] For example Murray & Elcese (2011) 'Teaching and Learning with iPads, Ready or Not?' Tech Trends. 55 (6) 42-48 – a generalised consideration of the the iPad's capabilities, and a brief summary of the arguments put forward by the enthusiasts, skeptics, and opponents.

[3] See Verhoeven & Snow (2001) for an extensive analysis of the importance of motivation and active engagement in learning to read.

collected data. These include the significance of the one to one element of the sessions, the multisensory approach, and the impersonalised learning activities that will be discussed below.

With regards to developing the methodology to be used, I have largely followed the recommendations of Punch (2009), Kumar (2011), and Hopkins (2008). These texts were consulted throughout the data collection process in order to ensure the research was of a high quality, reliable and valid.

Methodology

The methodology used in the research project has been mixed, as outlined by Kumar (2011). Firstly, quantative data was collected in the form of summative assessments. These assessments were carried out on eight pupils from two schools, one initial assessment, and one final assessment after the series of iPad-led phonics sessions had been delivered. Secondly, qualitative data was collected in the form of semi-structured interviews with the class teachers, who spent time using the *ABC PocketPhoinics* app, and also observed part of the taught sessions.

The iPad sessions were structured upon the *Letters and Sounds* framework, as this is currently used in both participating schools. The pupils were assessed based upon the *Letters and Sounds* phrasal progression. *ABC PocketPhonics'* content is based upon this framework and therefore it was easily be integrated into the pupils' current phonics knowledge and understanding.

As this is an evaluative research paper, the conclusions and recommendations put forward will be primarily drawn from the classroom based research. However, highly relevant qualitative data was also collected in the form of an interview, conducted by myself, with John Friend (Director of Apps In My Pocket, and developer of ABC

PocketPhonics), and a free response questionnaire completed by a teacher in a school that adopts a 1:1 pupil to iPad ratio in Scotland, and uses *ABC PocketPhonics* on a daily basis. The questionnaire and semi-structured interview questions were aimed at eliciting stakeholders' perceived impacts of *ABC PocketPhonics* on learning and pedagogies, and perceived difficulties in using iPads in the proposed context. I am confident that this additional qualitative data will add to the exploration of the application's benefits and limitations within the proposed context.

The classroom data was collected from the participating schools in succession rather than simultaneously. This allowed me to reflect upon the initial iPad sessions and, if necessary, implement modifications in order to improve the quality of the research.

I considered codifying and editing the collected quantative data, as Punch (2009) recommends, however, I decided that the data would be concise enough to present in its entirety, in the form of a two variable data table. With regards to the interviews and questionnaire, the interview with John Friend was recorded, and then separated into key sections, questions and answers using *Audacity* audio editing software. This allowed me to effectively organise and analyse the interview. Text is used to communicate the qualitative data, and any outstanding themes have been identified and explored, in the style recommended by Kumar (2011, 292).

Ethical Considerations

The research participants in this project are: the two class teachers from the participating schools; the pupils who take part in the iPad sessions and assessments; the teaching staff in Scotland who take part in the survey, and John Friend, developer of *ABC PocketPhonics*.

The methods used to collect the classroom data caused no anxiety, risk, or invasion of privacy greater than that ordinarily encountered in daily life. The class teachers were asked to approve the session plans before they were to be delivered and I spent time observing the participants in their normal phonics sessions in order to promote familiarity with myself in the learning environment.

I was aware of the ethical complications associated with exposing an intervention to a group of pupils and withholding from others (Oliver, 2010: 33), however, the constraints of time and resources meant that only a small group of pupils (3-4) would be able to take part in the iPad sessions. The participating classes contain 3-4 pupils who are underachieving are currently receiving focused teaching interventions in order to progress their learning. By collecting data from these pupils I was able to carry out the evaluative research, whilst providing support to those pupils who need it most, and concurrently maintaining the ordinary school routine of all pupils in the class.

With regards to collecting the qualitative data, the participants were made aware of the research aims prior to participation, as recommended by Oliver (2010). Permission was requested to audio record the interviews, and to present the findings of these, as well as the free-response questionnaire. The questions were carefully constructed so as not to influence the participants towards any particular viewpoint, but to allow their personal thoughts and opinions to be communicated, in contribution to the research.

Data Presentation

Classroom research

As described above, there were a total of eight pupils, from two schools who were active participants in the classroom research. The pupils were given an initial assessment,

which summarised their current working level within phase three of the *Letters and Sounds* programme, consisting of 26 sounds (see appendix 2.1 for list of sounds). As advised by the class teacher, and supported by Pennington (2009), they were graded from level 1 to level 5 (see appendix 2.2 for grading criteria).

After this assessment, a series of one-to-one phonics sessions using only the iPad and *ABC PocketPhonics* as a resource were delivered to the pupils. During these sessions, each pupil was only taught their personal 6 sounds, which were identified as their lowest scoring from the initial assessment. After the iPad sessions, the pupils were assessed again on all 26 sounds. Tables 1.1 and 1.2 show the assessment data of the 6 taught sounds for each pupil (see appendix 2.2 for grading criteria.

Table 1.1 – Assessment results from School A

Pupil	A1						A2						A3						A4					
Sound	qu	igh	oa	ear	air	ure	x	qu	ai	oi	ear	air	x	zz	ng	oa	oi	ure	x	qu	igh	oa	oo	ure
Initial Assessment	2	4	5	4	4	3	4	4	5	5	4	5	3	3	2	4	4	2	3	3	3	3	3	4
Final Assessment	1	1	1	1	2	1	1	1	3	3	2	1	1	1	1	1	1	1	1	1	1	3	1	1

Table 1.2 – Assessment results from School B

Pupil	B1						B2						B3						B4					
Sound	x	qu	ng	ai	ee	ow	x	ai	ow	oi	ear	air	qu	ng	ai	oa	oo	ure	zz	ng	igh	oa	air	ure
Initial Assessment	4	5	3	3	3	4	4	5	4	5	4	5	3	4	3	3	3	4	3	2	3	2	4	2
Final Assessment	1	1	1	4	1	1	1	3	1	3	2	1	1	1	1	3	1	1	1	1	1	1	1	1

*Please see appendix 3 for full assessment data on all 26 sounds*

The tables reflect 8 sets of 6 sounds, and the pupils' levels before and after the iPad sessions. In order to simplify this data, the changes in the pupils' levels for the 48 sounds have been grouped into three categories: level improved; level unchanged; and level decreased. The value of each category is reflected in the figure 2.1 below.

Figure 2.1 –   Chart of assessment progress
Sounds addressed in iPad sessions

Level Unchanged, 2, 4%   Level Decreased, 1, 2%

Level Improved, 45, 94%
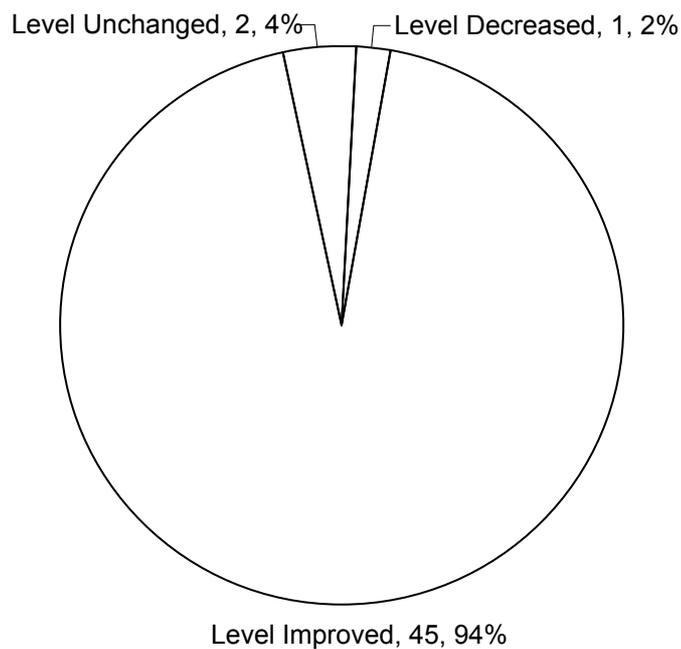
The full table of results (see appendix 3), shows the initial assessments and final assessments of all 26 sounds for each pupil. This includes the sounds that were not addressed in the iPad sessions. Figure 2.2 shows how the pupils' levels progressed, showing only data from the sounds that were not addressed in the iPad sessions.

Figure 2.2 –   Chart of assessment progress
         Sounds <u>not</u> addressed in iPad sessions

Level Decreased, 15, 9%   Level Improved, 16, 10%

Level Unchanged, 129, 81%
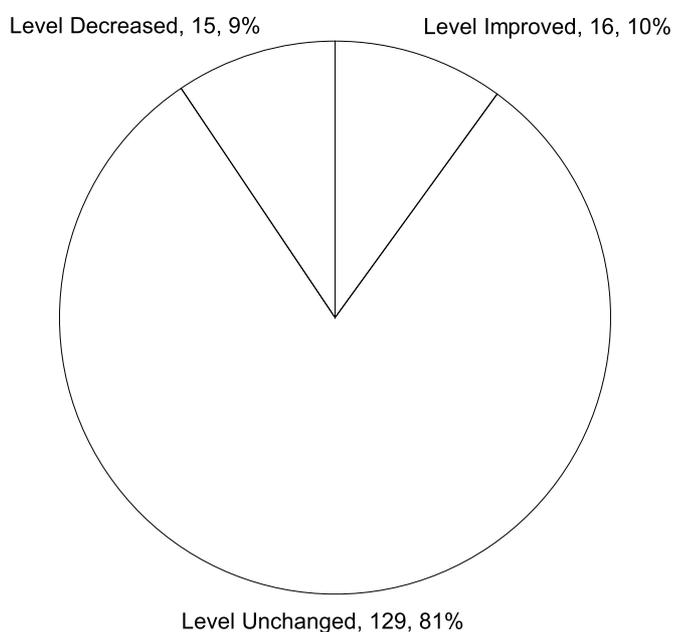
Interviews with class teachers from schools A and B.

The post-observation interviews with the two class teachers, one from each school, were semi-structured, and lasted around fifteen minutes. In school A, the teacher had observed an entire 10 minute session, and had an opportunity to explore the features of the app themselves. In school B, the teacher observed two children interacting with the app, and had an opportunity to explore the features of the app. The interviews revealed many interesting ideas and opinions about the potential benefits and limitations of the *ABC PocketPhonics* app. There were three key themes that stood out from their responses.

Firstly, both teachers expressed that the app was significantly tailored to suit personalised learning. Pupils are able to select the sounds they would like to learn or practise at their own leisure. The teachers observed that, if the app was used consistently in a classroom setting, it would allow pupils to progress at their own pace: relieving any

fear or pressure associated with making mistakes. Additionally, if the app was to be used in a whole class setting, teacher A suggested that the app allows teachers to specify which sounds to focus on in a particular session.

Secondly, both teachers extensively commented on the way in which the app teaches the recognition of letter sounds simultaneously with the writing of the sounds. The teachers felt that by learning the necessary handwriting movements associated with the letter sounds, as well as the recognition of the written/spoken sounds, the children were engaged at a multi-sensory level, which made them much more likely to retain the information they were learning.

Finally, both teachers felt that the app was limited in terms of how teachers would be able to use the application to assess the pupils learning. Teacher B suggested that, once the pupils had finished using the app "it's impossible to tell just from the iPad how much learning has actually taken place". Both teachers expressed that other forms of assessment would have to be employed if the app was integrated into schools; the app itself was unable to provide sufficient feedback on pupil progress.

Free response questionnaire from Teacher of Cedars School of Excellence, Greenock, Scotland[4].

This questionnaire was issued and returned via email and consisted of 6 key questions (see appendix 4 for question list). The Cedars Teacher was able to confirm that the school employs a 1:1 pupil to iPad ratio, and that the school uses *ABC PocketPhonics on a daily basis.* The Cedars Teacher felt that the app in itself is incapable of providing assessment data, although, they stated that they are "not looking to do that on the iPad". In order to establish pupils' current working levels and targets, the teacher uses a combination of observations, and written phonics tests.

---

[4] Henceforth to be referred to as: Cedars Teacher.

The Cedars Teacher was able to provide information regarding why the school chose *ABC PocketPhonics*, over the other 378 apps specifically associated with phonics[5]. The Cedars Teacher stated that other apps "were either American, too complex, too simple or difficult to use", and that *ABC PocketPhonics* was chosen because "it allows you to choose between different scripts, it's fun, it's easy for the pupils to master, it has good progression and it's well made (never crashes!)". This statement introduced the consideration of the apps ability to function and operate effectively, a potential limitation of technology in the classroom. If the app "crashed" on a regular basis it would be ineffective, regardless of its other successful elements.

Interview with John Friend, Director of Apps in My Pocket, and developer of *ABC PocketPhonics*

Friend was able to provide the research with a unique insight into the attitudes and beliefs that lead to the development of the *ABC PocketPhonics* app. He also expressed his opinion on the benefits of technology in the classroom, and the future potential of *ABC PocketPhonics* in the education system (see appendix 5 for interview questions and notes).

When asked about what makes the app a successful learning resource, Friend explained that a key element of the app's effectiveness was, unlike other educational apps that are heavily focused on gameplay, its sound educational basis. The app is founded on the synthetic phonics system, which is largely accepted as the most effective method of teaching and learning in early reading. Additionally, it became apparent from the interview that, the app is constantly being updated and improved upon. The improvements that are made are a direct result of feedback from teachers who use the app in an educational setting. An example of this is found in the new version of the app.

---

[5] Based on a search for "phonics" using the iTunes App Store, 4 December 2011

Friend explained that many users' feedback commented upon the lack of assessment in the app (as also expressed in the interviews and questionnaire above), and therefore the new version of the app has a specific feature designed to assess learners success in writing and recognising phonics (see appendix 6 for screenshot of the new version).

Friend expressed that, in comparison to the USA, the UK has drastically fewer iPads in schools being used as learning tools. He felt that, as an educational system, the UK is greatly missing out on an opportunity to provide a higher quality learning experience for children, and teaching experience for practitioners. Friend also pointed out that the app has a large number of downloads in the UK, and the majority of these users are likely to be upper-middle class families who can afford to provide their children with the devices to use the app, as well as parents who are actively involved in the education of their children, and recognise the potential of *ABC PocketPhonics*. "These advantaged children will be coming to school already being able to recognise and write phonics, pulling further and further away from the less advantaged children" (Friend, 2012), this suggests that, if this learning resource is so effective, it should be made available to all children, regardless of their soci-economic stature.

Analysis and Evaluation

It is important to establish the parameters and potential limitations of the research project, in order to provide effective commentary on the collected data. The sample, from which the data is yielded, is very low, even to be considered a significant representative of the local population. Schools A and B have relatively similar demographics, socio-economic foundations, and are less than 10 miles apart. Therefore the ability to make broader generalisations about the population, based on these results, is significantly reduced. Moreover, any suggestions, implications or recommendations drawn from this data must be considered as indicative rather than conclusive. Upon reflection, a similar

research strategy would yield much more accurate, significant data, if it were to use a sample of at least 100 pupils, from varied geographic locations, and of differing economic stature. However, the time and resources for such research were beyond the scope of this paper; the data gathered is yielded from a sound research strategy, and a valid combination of methodologies.

In analysing the assessment data gathered from the iPad sessions, it is important to consider both the progress that the pupils made on the 48 sounds that were focussed on (figure 2.1), and the progress made on the other 160 sounds from the phase (figure 2.2) that were not addressed in the sessions. The pupils' levels had improved in 95% of the sounds addressed, using only the iPad and *ABC PocketPhonics*. This strongly indicates that when an underachieving year 3 pupil uses *ABC PocketPhonics*, the pupil's knowledge and understanding of phonics progresses very rapidly, highlighting the effectiveness of the app as a learning resource. It must be acknowledged that, as Kaye (2007) points out, there are many advantages to one-to-one teaching, and it could be argued that this is a primary reason that the pupils levels progressed so rapidly. However, this argument is discounted, as the sessions deliberately had minimal input or direction from the teacher. The same pupil activity could have taken place in a full class of pupils with one teacher, as it does successfully in Cedars School of Excellence.

When comparing figures 2.1 and 2.2, the learning time made available to the pupils in sessions and in class is significant. Each pupil used *ABC PocketPhonics* to practise 6 sounds in 30 minutes, an average of 5 minutes per sound. The pupils' levels improved in 94% of these sounds. Given the same amount of time[6] in their ordinary

6 In schools A, and B, the class teacher was also teaching the participating pupils phase 3 Letters and Sounds phonics, for 5 hours per week. During the two week period in which the iPad sessions took place, the pupils took part in a total of 20 hours of classroom phonics lessons, in which they had a total of 120 sounds to learn. On average this is 5 minutes per sound.

lessons, using traditional resources[7], only 10% of the sounds that were not addressed in the iPad sessions had improved; 84% less than those taught using *ABC PcketPhonics*. The data therefore suggests that, when given the same amount of time, the pupils of this study were significantly more successful after using *ABC PocketPhonics,* than learning with traditional classroom resources.

Clearly there are other factors that may affect the pupils' learning in this study such as their own learning styles, the quality of their phonics lesson, the assessment process and other circumstantial elements. Regardless of these other factors, the data clearly suggests that in this case, the pupils learning excelled when using *ABC PocketPhonics.* With this established, the quantative and qualitative data can now be used to evaluate other important qualities of the app as a resource for teaching phonics to underachieving year 3 pupils.

As pointed out by Teachers A and B, Cedars Teacher, and John Friend, when children use *ABC PocketPhonics* they are engaged and motivated. Murdoch and Wilson (2008: 35) argue that this engagement and motivation means the pupils "are more likely to stay on task, accept challenges and remain motivated". From my own observations I found there were several reasons for this motivation and engagement. The pupils were intrigued by the iPad and the idea of using it in school as a learning tool; they were instantly willing and eager to actively participate in learning. Additionally, the app itself is highly visual and interactive, and contained many animations and incentives that made it enjoyable to use.

This enthusiasm that the app creates is combined with a focused multisensory learning approach. The pupils learned the new sounds through visual, auditory, tactile and kinaesthetic modalities. Established multisensory learning theory suggests that the more the senses are stimulated, the greater the efficiency of processing and retaining

---

[7] These included: teaching assistants, interactive whiteboards, mini whiteboards, worksheets, workbooks, outdoor area, pencils and paper.

information (Montessori, 1967; Orton, 1937). Through this multisensory approach, *ABC PocketPhonics* provides a flexible platform that meets the diverse social, cultural and intellectual diversity of the pupils to maximize learning effectiveness (Tardi *et al;* 2006), and this is reflected in the presented data.

The data collected from the teacher interviews, Cedars questionnaire, and session observations showed that a significant flaw of *ABC PocketPhonics* was its inability to provide any form of assessment data on pupils' progress. Wray (2002) states, "effective teachers [have] very clear assessment procedures, usually involving a great deal of focussed observation and systematic record keeping". This is directly in line with Cedar Teacher's assessment methods, which are used effectively in conjunction with the app. As the literature review reflected, a key argument for technology in the classroom is to save valuable time; this argument was also supported by John Friend. If the app were to be used in a whole-class setting, the practitioner would still need to set aside substantial time to perform observations of all pupils, as well as summative and formative assessments. However, a unique aspect of the use of application as a learning resource is in its ability to change and adapt in response to feedback from its users. The interview with Friend revealed that since the research for this paper took place, a new version of the app, *ABC PocketPhonics* Version 2.0, has been released. The new version contains many new features, including instant assessment scores for each sound that a pupil is learning (see appendix 6).

The classroom application of this new feature has the potential to save significant teaching time, as groups of sounds can be assessed at a glance. Friend explained that the changes in Version 2.0 were made in direct response to the feedback received from teachers and parents who use the app. This is a substantial, unique aspect of this learning

resource that is not possible in other traditional learning tools.[8] With *ABC PocketPhonics*, the software is constantly being improved upon in direct relation to teacher feedback, and simply requires 60 seconds to update the software for the pupils to receive the most current, effective learning opportunities available.

When considering this data alongside the current literature discussed above, there are some interesting comparisons. For example, Murray and Olcese (2011, 48) concluded that they could not "point to a single application that steps up to modern understandings of how people learn"; the data I have collected strongly opposes their findings. After using *ABC PocketPhonics* for only a few minutes, it is clear to anyone vaguely familiar with "modern understandings of how people learn", that sound educational theory, based on synthetic phonics and a multisensory learning approach, has been integrated into the development and design of every feature of this learning resource. The data collected in this paper strongly coincides with Hew and Brush's (2007) views on technology's ability to "enhance or reinforce skills, enrich current topics, or extend ideas beyond current levels" (Hew & Brush, 2007: 245), as discussed in the literature review.

There are other areas in the evaluation of this app that need to be addressed, but that are beyond the scope of this paper. For example, although there are some variable settings in the app such as the font style and learning foci, the principle learning activities are impossible to differentiate. There is strong evidence[9] to suggest that the highly interactive and multisensory interface would accommodate most learning styles, however

_____

[8] When a traditional learning resource becomes out-dated, they can be disposed of and replaced; although, due to budget restrictions this very often is impossible, and so pupils continue to receive a known lower quality learning experience, which is unacceptable.

[9] See Farrel (2012) for recommendations of effective teaching practise of children with dyslexia and other learning difficulties; many of Farrel's recommendations are directly in-line with the learning strategies employed by *ABC PockePhonics.*

further research would be necessary to establish how pupils with different learning styles or learning difficulties would respond to *ABC PocketPhonics*.

Conclusions and implications

Garthwait & Weller (2005) argue that new technology, such as the iPad, when integrated into our educational system, changes the dynamics of the learning environment. If the success of this app is recognised, and adopted by schools, this would inevitably bring about new barriers to learning associated with its application. Further research should be conducted to establish how pupils with different learning styles or learning difficulties would respond to *ABC PocketPhonics*, and strategies should be formulated to overcome potential barriers to learning associated with its use.

The purpose of this research paper was to establish the effectiveness of *ABC PocketPhonics* as a resource for teaching phonics to underachieving year 3 pupils. The data showed how pupils' knowledge of phonics improved in 94% of sounds after just 30 minutes of usage, with no direction or input from a teacher, compared to the 10% improvement achieved in ordinary lessons. Experienced teachers commented extensively on the effectiveness of the app as a learning resource, and observed its limitations with regards to assessment. Friend revealed that these limitations have been addressed, and rectified, exemplifying the resources unique ability to constantly improve as a result of teachers' feedback. Based on the outcomes of this research, it seems clear that *ABC PocketPhonics* can be used to great effect when used as a resource for, not only teaching underachieving year 3 pupils, but for all early reading learners.

References

Bell, L., Schrum, L., & Thimpson, A. D. (2009) *Framing research on technology and student learning in the content area: implications for educators*. Alabama: Information Age Publishing.

Cuban, L., Kirkpatrick, H., Peck, C. (2001) 'High access and low use of technologies in high school classrooms: explaining an apparent paradox' *American Educational Research Journal* 38 (4) 813-834.

Farrel, M. (2012) *The effective teacher's guide to dyslexia and other learning difficulties (learning disabilities): practical strategies.* 2nd Ed. London: Routledge.

Friend, J. *ABC PocketPhonics in schools*. Telephone interview by: Keher, J.,Edge Hill University, Ormskirk, U.K. 01 February 2012.

Garthwait, A., & Weller, H. G. (2005) 'A year in the life: Two seventh grade teachers implement one-to-one computing' *Journal of Research on Technology in Education*. 37(4) 361–377.

Goouch, K., & Lambirth, A. (2009) *Teaching early reading and phonics: creative approaches to early literacy*. London: Sage Publications.

Hew, K. F., & Brush, T. (2007) 'Integrating technology into K-12 teaching and learning: current knowledge gaps and recommendations for future research' *Educational Technology, research and Development.* 55(3), 223–252.

Johnston, R., & Watson, J. (2007). Teaching synthetic phonics. UK: Learning Matters Ltd.

Kaye, P. (2007) 'Teaching one to one' *Teaching English.* British Council, BBC World Service. http://www.teachingenglish.org.uk/articles/teaching-one-one. (Accessed 10 December 2011)

Lingard, T. (1997) 'Making Phonics Work: Its role within literacy acceleration' *Literacy – Oxford.* 31 (3) 43.

Maynard, S. (2010) 'The Impact of e-Books on Young Children's Reading Habits' *Publishing Research Quarterly* . 26 (4) 236-248.

Montessori, M. (1967). The absorbent mind. (C.A. Claremont, Trans). New York: Holt, Rinehart and Wilson.

Murray, O. T., & Olcese, N. R. (2011) 'Teaching and Learning with iPads, Ready or Not?' *Tech Trends*. 55 (6) 42-48

Oliver, P. (2010) *Student's Guide to Research Ethics*. 2nd ed. Maidenhead: Open University Press

Orton, S. T. (1937). Reading, writing and speech problems in children: A presentation of certain types of Disorders in the development of the language faculty. New York: W. W. Norton.

Pennington, M. (2009) *Phonemic Awareness and Phonics Toolkit.* California: Pennington Publishing.

Selwyn, N. (2011) *Education and Technology: Key Issues and Debates*. London: Continuum.

Shapley, K., Sheehan, D., Maloney, C., Caranikas-Walker, F. (2010) 'Effects of technology immersion on teachers' growth in technology competency, ideology, and practices' *Journal of Educational Computing Research*. 42 (1) 1-33.

Tardi, S., Catarina, M., & Goldstein, M. (2006) 'Maximizing Teaching and Learning Effectiveness' *International Journal Of Learning*. 12 (11) 79-83.

Verhoeven, L., & Snow, C. E. (2001). Literacy and motivation: Bridging cognitive and sociocultural viewpoints. In L. Verhoeven & C. Snow (Eds.), Literacy and motivation: reading engagement in individuals and groups (pp. 1–23). Mahwah, NJ: Lawrence Erlbaum.

Wray, D (2004) *Teaching Literacy Effectively In The Primary School.* Taylor & Francis Routledge, eBook Collection (EBSCOhost), EBSCOhost, viewed 4 January 2012.

Appendix 1

Appendix 1

ABC Pocket Phonics screenshots

Write with your finger.

To erase your finger writing, shake me.

at

When I say a soun

sa_
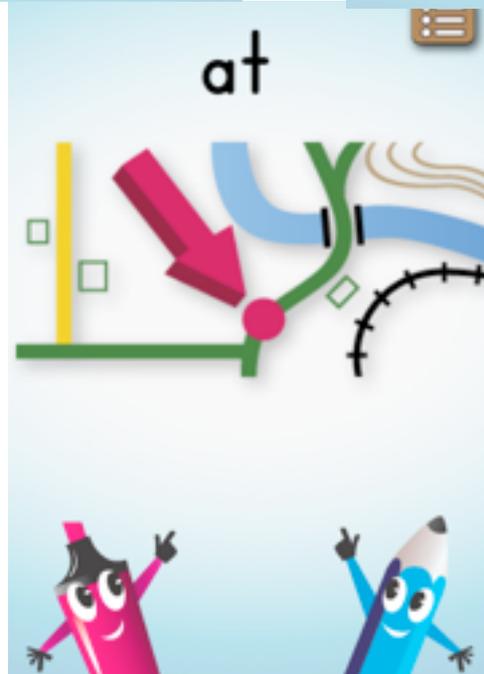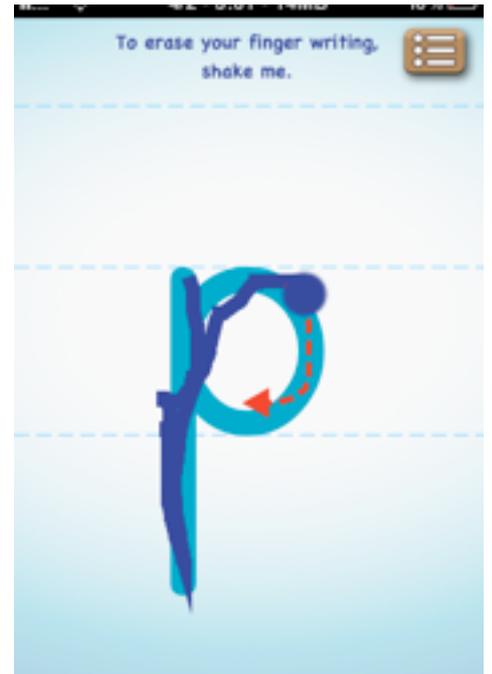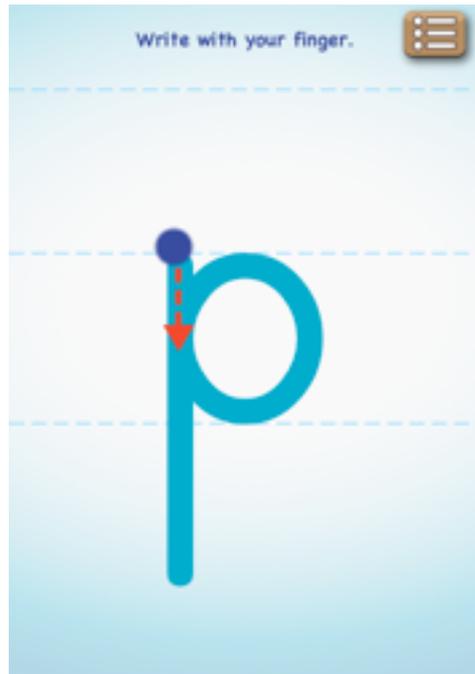
Appendix 2

Appendix 2.1 - Phase 3 Sounds

j	ee	zz	ur
v	igh	qu	ow
w	oa	ch	oi
x	oo	sh	ear
y	ar	th	air
z	or	ng	ure
		ai	er

Appendix2.2 - Phonics Assessment grading Criteria

Level 1

The pupil is able to recite the sound independently, correctly and confidently, with little or no hesitation.

Level 2

The pupil is able to recite the sound independently and correctly but is significantly hesitant.

Level 3

The pupil is able to recite the sound, but has required minor prompting – may have had incorrect attempt.

Level 4

The pupil is able to recite the sound, perhaps after an incorrect attempt, but has required significant support and prompting.

Level 5

The pupil has been unable to recite the sound, even after significant support and prompting

Appendix 3

Appendix 3

Full assessment results, see appendix 2.2 for grading criteria.

Key
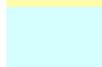
   	Level Unchanged
   	Level Improved
   	Level Decreased

1 Independant

2 Hesitant

3 Prompt

4 Support

5 Unacheived

x Practised

Pupil

School A

Sound	A1 Initial Assessment	A1 Session 1	A1 Session 2	A1 Session 3	A1 Re-Assessment	A2 Initial Assessment	A2 Session 1	A2 Session 2	A2 Session 3	A2 Re-Assessment	A3 Initial Assessment	A3 Session 1	A3 Session 2	A3 Session 3	A3 Re-Assessment	A4 Initial Assessment	A4 Session 1	A4 Session 2	A4 Session 3	A4 Re-Assessment
j	1				1	1				1	1				1	2				2
v	1				1	2				2	1				1	1				1
w	1				1	2				1	1	x	x		2	2				1
x	1				1	4	x	x	x	1	3	x	x		1	3	x	x	x	1
y	1				1	2				2	2				2	2				2
z	1				1	1				2	1				1	1				1
zz	1				1	1				1	3	x	x	x	1	1				1
qu	2	x	x	x	1	4	x	x	x	1	1				1	3	x	x	x	1
ch	1				1	1				1	1				1	1				1
sh	1				1	2				3	1				1	2				1
th	1				1	1				1	1				1	3				1
ng	1				1	4				4	2	x	x	x	1	4				1
ai	2				2	5	x	x	x	3	1				3	1				2
ee	1				1	1				1	1				1	1				1
igh	4	x	x	x	1	2				1	1				1	3	x	x	x	1
oa	5	x	x	x	1	4				4	4	x	x	x	1	3	x	x	x	3
oo	1				1	1				1	1				1	3	x	x	x	1
ar	1				1	1				1	1				2	1				2
or	1				1	1				1	1				1	2				3
ur	1				1	2				2	1				2	1				2
ow	1				1	3				3	1				1	1				1
oi	1				1	5	x	x	x	3	4	x	x	x	1	1				1
ear	4	x	x	x	1	4	x	x	x	2	1				1	1				1
air	4	x	x	x	2	5	x	x	x	1	1				1	1				1
ure	3	x	x	x	1	4				3	2	x	x	x	1	4	x	x	x	1
er	1				1	1				1	1				1	1				1

School B

Sound	B1 Initial Assessment	B1 Session 1	B1 Session 2	B1 Session 3	B1 Re-Assessment	B2 Initial Assessment	B2 Session 1	B2 Session 2	B2 Session 3	B2 Re-Assessment	B3 Initial Assessment	B3 Session 1	B3 Session 2	B3 Session 3	B3 Re-Assessment	B4 Initial Assessment	B4 Session 1	B4 Session 2	B4 Session 3	B4 Re-Assessment
j	1				1	1				1	1				1	2				2
v	1				1	2				2	1				1	1				1
w	1				1	2				2	1				1	2				1
x	4	x	x	x	1	4	x	x	x	1	2				1	1				1
y	1				1	2				2	2				2	2				2
z	1				1	1				1	1				1	1				1
zz	1				1	1				1	1				1	3	x	x	x	1
qu	5	x	x	x	1	2				2	3	x	x	x	1	1				1
ch	1				1	1				1	1				1	1				1
sh	1				1	2				2	2				1	1				1
th	1				1	1				1	3				1	1				1
ng	3	x	x	x	1	4				4	4	x	x	x	1	2	x	x	x	1
ai	3	x	x	x	4	5	x	x	x	3	1				3	1				1
ee	3	x	x	x	1	1				1	1				1	1				1
igh	1				2	2				1	3	x	x	x	1	3	x	x	x	1
oa	4				4	1				1	3	x	x	x	3	4	x	x	x	1
oo	1				1	1				2	3	x	x	x	1	1				1
ar	1				1	1				1	1				2	1				2
or	2				2	1				2	2				2	1				1
ur	2				1	1				1	1				2	2				2
ow	4	x	x	x	1	4	x	x	x	1	1				1	1				1
oi	2				2	5	x	x	x	3	1				1	2	x	x	x	1
ear	1				2	4	x	x	x	2	1				1	1				1
air	1				1	5	x	x	x	1	1				1	4	x	x	x	1
ure	3				3	3				3	4	x	x	x	1	2	x	x	x	1
er	1				1	1				1	1				1	1				1

Appendix 4

Appendix 4

Open response questionnaire from a Teacher at Cedars School of Excellence, Greenock, Scotland 02/02/12.

1. What year groups use ABC PocketPhonics?

We use it with Primary 1 and 2 (5 and 6 year olds)

2. How often is ABC PocketPhonics used in class?

Initially on entry to Primary 1 used pocketphonics every day to reinforce the new letter we were learning. I did from the Aug-Dec and now I use it less frequently as we have learned all letters. I'll ask children to spend some time practicing letters they are unfamiliar with or to play the word games.

3. Do the children usually choose which sounds they would like to practise, or are they specified by the teacher?

Initially the sounds we specified by me but now they are free to do whichever letters they choose.

4. How is the progress of the pupils using the app assessed?

I assess them through observation - I only have 7 pupils in my class so it's easy to do! I have a written phonics test which I do and then from there I give them target letters to work on when using Pocket Phonics.

5. The app store is crowded with reading and writing educational apps - why does your school choose to use ABC PocketPhonics?

We looked at quite a few different phonics apps but they were either American, too complex, too simple or difficult to use. We chose ABC PocketPhonics because it allows you to choose between different scripts, it's fun, it's easy for the pupils to master, it has good progression and it's well made (never crashes!)

6. With regards to teaching, learning and assessment, what do you consider are the limitations of ABC PocketPhonics?

I use ABC PocketPhonics along-side my regular phonics work in class. I use it in addition to workbooks, games and songs so it's just another tool. I don't consider there to be any limitations of the app as it does exactly what I want and the children love it. I still use my regular methods of assessment and am not looking to do that on the ipad.

Appendix 5

Appendix 5

Key questions and notes from semi-structured interview with John Friend.

What do you think are the main strengths of pocket phonics - in terms of children learning to read, and early reading.

- What is it about the app that works so well in getting children to learn the sounds?

Some argue that technology can do things better/worse than traditional resources (whiteboards, worksheets, flashcards)

Some argue that technology like the iPad, not only does things better, but lets teachers and learners do things that would not have otherwise been possible at all.

- Do you agree? - What are you're thoughts on technology in the classroom in education?

I know there has been a new verion of the app recently – what changes have been made since the version I tested out, and why?

All the teachers who saw me using the app with the kids loved it and had nothing but positive things to say – extremely visual, interactive, appeals to many different learning styles.

- If the government says – from now on every pupil is getting an ipad in schools, and the ipads need Pocketphonics – are there any changes (unlimited budget) you would make to the app for a school specific version?

What are you're plans for the the future of apps in my pocket and pocket phonics?

Appendix 6

Appendix 6

ABC PocketPhonics Version 2.0 – assessment overview screenshot.
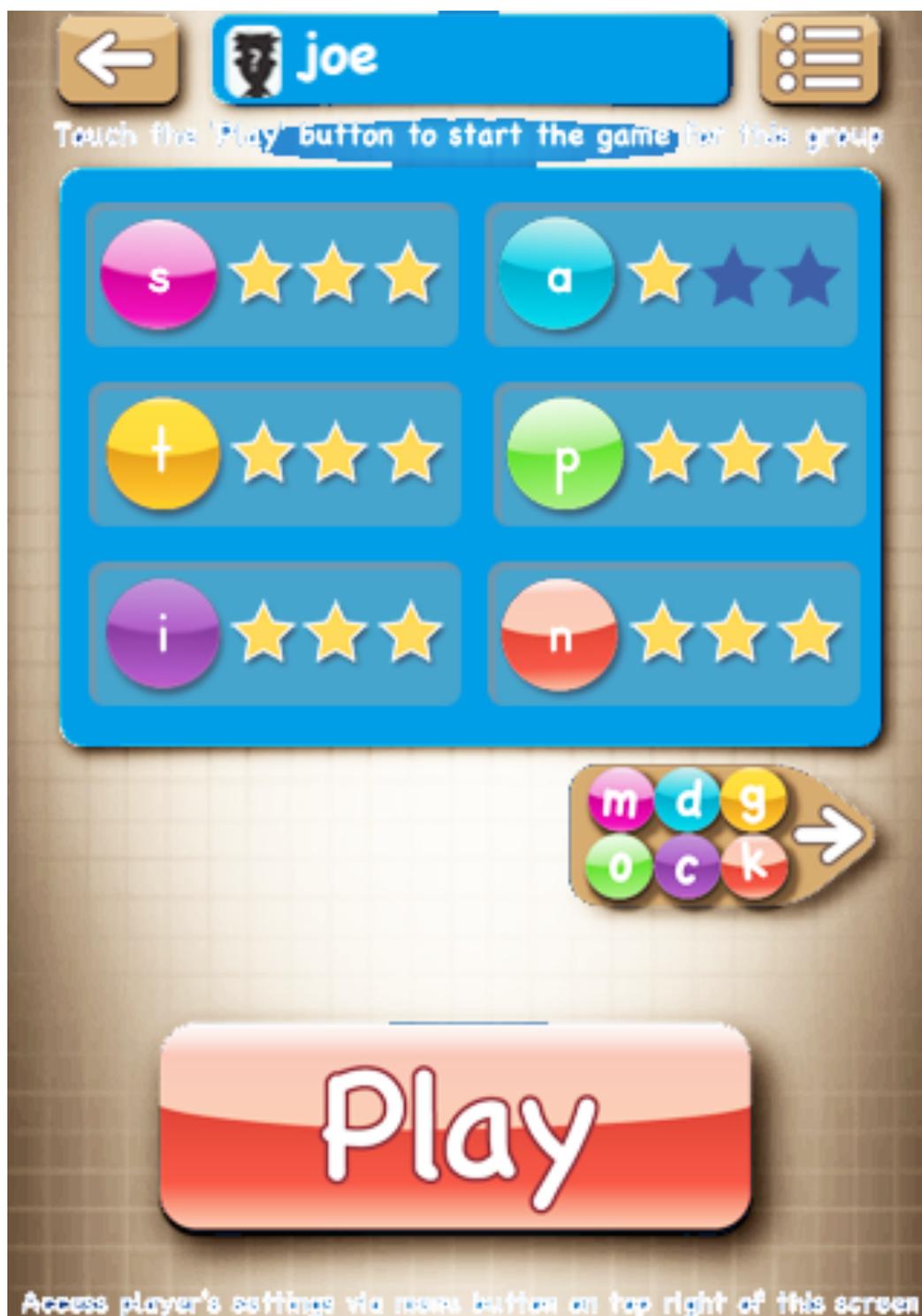
Please note – some colour has been removed from screenshot.

Appendix 7

Research Proposal

An evaluation of the *ABC Pocket Phonics* iPad application as a resource for teaching phonics to under-achieving year 3 pupils.

1. Abstract

The use of tablet computers such as the iPad as a resource for teaching and learning in literacy is becoming increasingly popular in primary schools in the USA and UK (Warschauer, 2011). In the near future, it seems likely that tablet PCs will follow the trend of PCs, interactive whiteboards and laptop computers; becoming a commonplace resource in the classroom. However, there is very little research that focuses on the effectiveness of tablet computers or their software in an educational setting.

This research will seek to evaluate the effectiveness of the iPad application, *ABC Pocket Phonics* as a resource for teaching phonics to under-achieving year three pupils. It will attempt to do this by assessing pupils' current working levels; delivering three ten minute phonics sessions using *ABC Pocket Phonics;* and finally assessing the pupils' progress. The teaching and learning advantages and limitations of this resource will be identified and explored.

2. Context

The research will be conducted in two schools that are both based in the North West of England. School A has 403 mixed gender pupils, 14 teaching staff and 14 classroom support staff. The percentage of pupils eligible for free school meals is very low and pupils attend from an advantaged socio-economic area. School B has 156 mixed gender pupils, 7 teaching staff and 4 classroom support staff. The proportion of pupils eligible for free school meals is above average. Both schools use interactive whiteboards in all classrooms and pupils have access to at least 2 computers per classroom.

3. Proposed Methodology

The methodology to be used will be mixed as outlined by Kumar (20110): firstly, quantative data will be collected in the form of summative assessments carried out on four pupils before and after the delivery of the iPad sessions; secondly, qualitative data will be collected in the form of interviews, questionnaires and session observations from the class teacher. A teacher will also be interviewed from a school in Scotland that has a 1:1 pupil to iPad ratio, and uses *ABC Pocket Phonics* on a daily basis. The interviews will contain semi-structured questions aimed at eliciting stakeholders' perceived learning outcomes and impacts of *ABC Pocket Phonics* on learning and pedagogies, and perceived difficulties in using iPads in the proposed context.

The iPad sessions will be based upon the *Letters and Sounds* framework, as this is currently used in both participating schools. The pupils will be assessed based upon the *Letters and Sounds* phrasal progression. *ABC Pocket Phonics'* content is based upon this framework and therefore can easily be integrated into the pupil's current phonics

Although the effectiveness of *ABC Pocket Phonics* will largely be reflected in the quantative data, I decided to use the mixed methodology approach because the exploration of the application's benefits and limitations will be most effectively represented through the qualitative research.

The data will be collected from the participating schools in succession rather than simultaneously. This will allow me to reflect upon the initial iPad sessions and, if necessary, implement modifications in order to improve the quality of the research.

I considered codifying and editing the quantities data to be collected, as Punch (2009) recommends, however, I decided that the data would be concise enough to present in its entirety, in the form of a two variable bar chart. Text and polyvariate tables will be used to communicate the qualitative data.

4. *Ethical Considerations*

The research participants in this project are: the two class teachers from the participating schools; the pupils who will be subject to the iPad sessions and assessments; and the teaching staff from Cedars School of Excellence, Greenock, Scotland.

The methods in which data is to be collected will cause no anxiety, risk, or invasion of privacy greater than that ordinarily encountered in daily life. Steps have been taken in order to ensure participants' safety. The class teachers have been asked to approve the session plans before they are to be delivered and I have spent time observing the participants in their normal phonics sessions in order to promote familiarity with myself in the learning environment.

I was aware of the ethical complications associated with exposing and intervention to a group of pupils and not others, however, the constraints of time and resources meant that only a small group of pupils (3-4) would be able to take part in the iPad sessions. The participating classes contain 3-4 pupils who are underachieving are currently receiving focused teaching interventions in order to progress their learning. By collecting data from these pupils I will be able to carry out the evaluative research, whilst providing support to those pupils who need it most, and concurrently maintaining the ordinary school routine of all pupils in the class.

5. *Indicative Bibliography*

Hew and Brush's study (2007) regarding the integration of technology into the education system, provided me with an excellent contextual review of the benefits, limitations, and pedagogical issues associated with, in particular, ICT systems in the classroom. This study was also concerned with identifying current knowledge gaps, which was highly relevant to the formation of this research project.

Although Lingard's text (1997) on good practise in phonics is dated, it is a highly cited text within this topic.. The text provided me with an excellent foundation of knowledge, upon which to begin making considerations of a high-quality, iPad-led phonics session. This is a crucial element to the research as the general teaching standard needs to be of considerable quality in order for the data to be reliable.

The research of Li *et al* (2009) into the use of tablet PCs as a tool for empowering student learning contained some very relevant findings that will be referred to throughout the project. This was the only research I was able to find that was specifically related to this topic, which was part of a journal with an impact factor above 1.2.

With regards to developing the methodology to be used, I have largely followed the recommendations of Punch (2009), Kumar (2011), and Hopkins (2008). These will also be consulted throughout the data collection process in order to ensure the research is quality, reliable and valid.

6. *Expected Conclusions*

Based on the extensive research into effective strategies in accelerating progress in phonics teaching (Lingard, 1997) there is much evidence to suggest that ABC Pocket Phonics will prove to be successful as a teaching intervention for these year 3 pupils.