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Exploring the use of The Learning Cloud to enhance literacy development of primary school children.

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Section 1   Introduction

In Scotland, the Curriculum for Excellence (CfE) was developed to provide a flexible and coherent curriculum covering the age range 3-18 years. It aims to help each child or young person acquire knowledge, skills and attributes to develop the four capacities of becoming a successful learner, a confident individual, a responsible citizen and an effective contributor (Scottish Executive, 2004). One of the eight curricular areas is Languages (Scottish Executive, 2006). This area is further sub-divided into Literacy and English, Modern Languages, Classical Languages, Literacy and Gàidhlig, Gaelic (Learners) and the Scots Language. Literacy is one of three cross-curricular areas, the others being health and wellbeing and numeracy, which are considered to be the responsibility of all practitioners.

The Scottish Government is committed to improving the literacy of its citizens and has developed a Literacy Action plan (Scottish Government, 2010). Literacy skills are viewed as fundamental to each individual's learning and future life prospects as well as providing the basis for a strong and productive national economy. Learning, including literacy, is considered from a lifelong perspective. It starts at birth and progresses through the early years (home and early years establishments), school education (primary and secondary), further and higher education and other adult learning contexts. Given the association between poor literacy levels and socio-economic status and deprivation, it is considered important that measures are taken to address inequities in life choices and achievement.

In the context of Curriculum for Excellence, guidance in the form of a literacy framework has been provided for educators to support literacy across the curriculum (Education Scotland, n.d.). This guidance offers a broad definition of 'texts' to take account of the diverse range of resources which children have access to in a modern technological society. A text is defined as "the medium through which ideas, experiences, opinions and information can be communicated" (p.4). Relevant to this study, the guidance states that the "literacy framework reflects the increased use of multimodal texts, digital communication, social networking and the other forms of electronic communication encountered by children and young people in their daily lives" (p.4). It recommends that children should be exposed to a range of texts in different formats.

Giglets Education is an award-winning education technology company based in Scotland, which is committed to delivering world class, digital educational material for the development of Reading and Literacy (www.giglets.net). The company achieves this through their SmartReads ebooks and a range of other teaching and learning resources designed to promote literacy, reading and language development using The Learning Cloud – a web-based service for schools around the globe. The Learning Cloud promotes reading through an innovative online book reader created specifically for accessibility. There is also access to relevant cross-curricular learning resources. The Learning Cloud brings together some of the world's most famous and challenging stories and re-

imagines them as short, modern animated educational experiences called SmartReads.

The resources developed by Giglets Education are viewed as contributing to the Literacy cross-curricular area in CfE through providing teachers and pupils with an original online, e-reading and learning platform. Development of The Learning Cloud has been informed by CfE. Account has been taken of the underpinning principles of CfE and students' experiences and outcomes linked to the five curriculum levels in the broad general education from the early years to the end of S3 (Education Scotland, n.d.). In Scotland, the Learning Cloud is being used in a number of local authorities and currently more than 10,000 pupils are using the resources. The resources are being developed and refined on an ongoing basis by the company drawing on the experiences of product users. This study is seen as contributing to this process through an exploration of its implementation in one school.

The aim of the study was to explore the use of The Learning Cloud in a composite class in a primary school in one local authority in Scotland. It was intended that the findings would be used to inform the future development and application of this product in the primary school context and thus support and enhance approaches to the teaching and learning of literacy.

Specific objectives of the study were to investigate:

  i.   Teacher's perspective of The Learning Cloud
 ii.   Pupils' perspectives of The Learning Cloud
iii.   Parents'/Carers'[1] perspectives of The Learning Cloud
 iv.   Impact of the resource on pupils' level of interest, engagement and attitude towards reading
  v.   Impact of the resource on the amount, type and range of literature the pupils are reading
 vi.   Impact of the resource on developing pupils' digital literacy skills

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[1] The word 'parents' will be used as an umbrella term for 'parents/carers' at various points in the report

Section 2   Staff Training

One primary school was involved in the study. The chairman and founder of Giglets Education, Dr. Karsten Karcher, provided training for two staff in the school, namely the head teacher and the class teacher of the composite P5, 6 & 7 class. It should be noted that staff from the company had provided training to the cluster of schools, including the study school, during the previous school session. However, due to staffing changes, further training was required to familiarise new staff with The Learning Cloud.

The training took place on 26th August 2015. The 90-minute session incorporated admin training (10 minutes) and full system training (80 minutes).

Further support was provided post-training through email contact. This addressed specific questions raised by teaching staff.

Section 3 Pupil Training

Following the staff training and a visit to the school by the two researchers on 1st September 2015, it had been intended that the pupils would start using The Learning Cloud from 7th September 2015. However, as there had been some technical issues it was arranged that the chairman and founder of Giglets Education, Dr. Karsten Karcher, would provide a one-hour training session for the pupils on 5th October. The head teacher and class teacher were present at this session. The content of the training is detailed in Table 1.

Table 1   **Content of pupil training**

Topic	Method
Login to system	Quickly resolved all login questions from pupils. Where there had been a problem, in most cases this was due to the pupil typing in their login names incorrectly. For one pupil their name had been entered incorrectly into the system for the login detail.
Connectivity issues at home	Demonstration to show the fast speed of the system at the school. Discovered that any network issues or device issues at home were due to either inferior home connectivity or inferior home devices (e.g. old Tesco tablet).
Features of the system	Demonstration of additional features. These included: the dyslexia font; how to assign books; how to email the teacher; how to read books; how to answer tasks; and content of the system. The trainer noted that a number of the pupils responded very positively to the dyslexia font.
Legend of Knockmany audio book	Played 1-2 minutes of this audio book. The trainer noted a very positive response from the pupils and the two teaching staff present.

The trainer also provided support through two follow up emails in relation to questions posed by the pupils.

Section 4   Methodology

4.1   Participants

The project evaluated the use of The Learning Cloud in a P5-P7 composite class in a small rural school. The CEO of the company had previous links with the school and staff had participated in training offered to the school cluster in the area.   However, there were a number of staffing changes in academic session 2015-16 and this necessitated the provision of training to familiarise these staff with the product.

The researchers sought and obtained permission from an officer in the local authority. They were granted approval to approach the head teacher of the school to see whether they were willing to take part in the project.   The researchers made direct contact with the head teacher to discuss what would be involved in the project. An arrangement was then made to visit the school on 1st September to meet the head teacher, the class teacher and the pupils.

The participating school was recruited based on the following criteria: the head teacher agreed to take part in the project; and the class teacher agreed to implement the product and participate in the independent evaluation.

Pupil participants were recruited based on the following criteria: they were members of the class which had been using The Learning Cloud; their parents/carers had given informed consent to their children completing the on-line questionnaire following a period of implementation; and the pupils had given informed consent to complete the on-line questionnaire.

The participating pupils were in a composite P5-7 class (5 P5 pupils, 9 P6 pupils and 7 P7 pupils). All pupils were involved in using the product in class and at home and had the option as to whether or not they participated in the evaluation.

Parent/carer participants were recruited based on the following criteria: they were the parents/carers of pupils in the P5-7 composite class which had been using The Learning Cloud. They were asked to complete the parent/carer questionnaire following a period of implementation.

The school staff participant for the semi-structured interview was the P5- 7 class teacher who had implemented The Learning Cloud in their class and provided informed consent for the interview.

4.2   Ethics

The researchers obtained ethical approval from the University of Dundee Research Ethics Committee. Clearance was obtained at all systemic levels from the stakeholders. The confidentiality and anonymity of participants has been maintained at all times in this report.

4.3   Methods

The project has been a collaborative enterprise involving the company (Giglets Education) and two researchers at the university. The CEO and Founder of the company, Craig Johnstone, and the education project manager supplied The Learning Cloud to the school. The Chairman and Founder of the company, Dr. Karsten Karcher, provided initial training and follow-up support to teaching staff and pupils. The two researchers focused their evaluation of the product on a P5-7 composite class in a rural primary school.   The evaluation incorporated assessment of the process of implementation and the impact of the product (Rossi, Lipsey, & Freeman, 2004).

Assessment of the implementation process and impact of The Learning Cloud utilised data from a range of stakeholders. The data sources included the teacher implementing the programme; the pupils who participated in the programme; and the parents/carers of the pupils who participated in the programme. Triangulation was provided through gathering the perspectives of pupils and parents/carers, using on-line questionnaires, and the class teacher, using a semi-structured interview.

Socrative (http://www.socrative.com/) was used as the platform to create the on-line questionnaire for both the pupils and the parents/carers. The class teacher administered the questionnaire to the pupils with prior support and guidance from the researchers. The head teacher sent parents/carers information about the parent questionnaire using information supplied by the researchers.

The pupil questionnaire incorporated both closed and open questions and explored their views about The Learning Cloud; how they used the resource in school (when, how long, using interactive whiteboard/PC/tablet/phone etc.); whether and how they used the resource at home (when, how long, using PC/tablet/phone etc.); whether the use of the resource had led to a change in their level of interest and attitude towards reading; whether the use of the resource had led to a change in the amount, type and range of literature they were reading; and whether the resource had developed their digital literacy skills. The questionnaire was informed by the 7 principles underpinning CfE. The primary 5 and 6 pupils completed the questionnaire in class in early December. The primary 7 pupils completed theirs in early January (following the two week holiday period).

The parent/carer questionnaire incorporated both closed and open questions and explored their views about The Learning Cloud; whether and how their child used the resource at home (when, how long, using PC/tablet/phone etc.); whether the use of the resource had led to a change in their child's level of interest and attitude towards reading; whether the use of the resource had led to a change in the amount, type and range of literature their child was reading; and whether the resource had developed their child's digital literacy skills.   The questionnaire was informed by the 7 principles underpinning CFE. The

questionnaire was initially launched in December and was closed in early January.

One of the researchers carried out a semi-structured telephone interview with the class teacher on 10th December after an eight-week period of implementation. The teacher was provided with a participant information sheet and consent form and a copy of the interview questions prior to the interview. The semi-structured interview was undertaken at a time that was convenient to the teacher. The interview lasted approximately 30 minutes and the interviewee was given the option of having the interview audio-recorded or notes made by interviewer. The teacher opted to have notes taken. The teacher interview explored her views about The Learning Cloud; how she currently uses the resource in her classroom (when, how long, using interactive whiteboard/PC/tablet/phone etc.); whether and how she has encouraged the use of the resource at home; whether the use of the resource has led to a perceived change in the pupils' level of interest and attitude towards reading; whether the use of the resource has led to a perceived change in the amount, type and range of literature the pupils are reading; and whether the resource has developed the pupils' digital literacy skills. The interview was informed by the 7 principles underpinning CFE.

Qualitative data from responses to the open questions in the parent and pupil questionnaires were analysed using content analysis (Stemler, 2001). The two researchers collaborated throughout this process. The second author carried out the initial categorisation, which was checked by the first author, discussed and further revisions made. A similar process was adopted for the analysis of the teacher interview data.

Section 5   Results and Discussion

The results of the investigation will be considered in the context of the objectives:

     i.   Teacher's perspective of The Learning Cloud
    ii.   Pupils' perspectives of The Learning Cloud
    iii.   Parents'/Carers' perspectives of The Learning Cloud
    iv.   Impact of the resource on pupils' level of interest, engagement and attitude towards reading
    v.   Impact of the resource on the amount, type and range of literature the pupils are reading
    vi.   Impact of the resource on developing pupils' digital literacy skills

A total of 20 pupils (4 male and 16 female) out of 21 pupils completed the on-line questionnaire in class.

Only 2 parents completed the on-line questionnaire. This is a perceived limitation of the study in terms of the generalisability of the findings to the parents of pupils in this class. Notwithstanding this, it was thought appropriate to include the parent data as it offered a different perspective and could be considered against the pupils' and teacher's views of The Learning Cloud.

5.1 Teacher's perspective of The Learning Cloud

The class teacher explained that The Learning Cloud was being used at a set time each week with different reading groups, with the whole class and at home as part of the pupil's homework. The Learning Cloud was accessed in school on iPads by individual pupils, when working in their reading groups, and on the Interactive Whiteboard (IWB), as a way of generating group and whole class discussion around a particular text. The class teacher discussed how the two methods of accessing and using The Learning Cloud with the pupils (iPads and IWB), provided opportunities for independent and collaborative learning with the latter being the main style of learning due to using the texts and tasks to engage the pupils in discussion. She also explained that the pupils in the higher reading group were sharing their learning with others in the group and with other groups who were interested.

Although the class teacher commented positively on the flexibility of where and when the books could be read, due to being online, she did explain that due to poor wifi speeds in the participants' rural location, this resulted in '*the flow of the reading being stalled due to the materials not downloading fast enough*' or in the case of homework '*technology could therefore hinder the homework and sometimes traditional methods had to be reverted to*'.

Likewise, although the pupils had a great deal of experience using technology and tablet devices at school and home, there were still some technical issues due to the different tablet devices that the pupils had at home. With that said, the class teacher felt that Bring Your Own Device (BYOD) to school would be the best

option, rather than only having access to the school's iPads, due to the devices being more readily available rather than being shared across the school.

In relation to the class teacher's professional practice, she commented positively on a variety of aspects which she felt supported her planning, management and organisation, and assessment of the pupils' learning. She felt that management and organisation of the pupil's learning was simpler, however, she did point out that when assigning a book to a whole group, this needs to be done for each pupil rather than the whole group, thus taking up a little more time. The class teacher felt that planning differentiated learning activities for the pupils was easier because everything was in one place and there was a variety of texts to choose from. Due to being able to differentiate reading activities for each reading group, the class teacher felt that the pupils had more ownership of the learning materials. The class teacher commented positively on the assessment aspect of the online books in relation to pupil self assessment, however, she did note that the formative feedback tool was not working effectively. The class teacher was positive with regards to tracking the pupils' learning through the product's ability to record each pupil's progress which can then be viewed by the teacher.

With regards to the impact the use of The Learning Cloud had on the pupils' learning, the class teacher felt that the less able pupils were demonstrating a deeper understanding of texts due to becoming more confident in their reading abilities. She also felt that the online books '*made the children think about what they are reading rather than just read the text'.*

The class teacher also felt that the pupils' writing and spelling had improved marginally and that the pupils were now experiencing a broader range of literacy themes and styles due to the addition of the online books alongside the class's reading scheme.

The class teacher provided constructive feedback in relation to the benefits and disadvantages/ barriers to using The Learning Cloud. One of the positives that she felt The Learning Cloud afforded, in relation to developing the pupils' knowledge and understanding, was the progressive nature of learning due to the texts that were available for different reading abilities. She also felt that there was coherence of learning in the pupils' language and written work.

With regards to how the pupils learned, the class teacher commented positively on the formatting tools that were available where the pupils liked the ability to be able to change the font and highlight parts of the text to support their learning. Although the class teacher was very positive about the use of The Learning Cloud, describing it as innovative, interesting and very user friendly, she commented on the pupils' preference for paper books as they found the reading experience to be more enjoyable. She explained that although she preferred the online books over paper books because '*they were more user friendly and accessible'*, she felt that there was still a place for the use of paper books in relation to how the pupils learn where '*it is still good to hold a real book and sit and read it'.*

She then went on to explain that this was similar to the traditional method of note taking, using pencil and paper rather than only digital, due to '*it is still good to have pencil and paper to take notes rather than only annotated online texts. There needs to be a balance between both'*.

With regards to engaging the pupils in learning, the class teacher thought that the pupils appeared more motivated when engaging with the online comprehension materials, specifically reluctant readers who appeared to be more motivated. She also felt that due to the online books being more engaging than the current reading scheme, pupils who found it difficult to sit still and read a book found The Learning Cloud books to be more motivating. She commented that due to the books being differentiated, pupils had ownership of the materials. In addition, a confidence boost was given to the pupils in the lower reading group as they felt they were doing the same work as the other groups.

The multimedia aspect of the online books was viewed as a motivational factor as it made them more engaging for the pupils. The audio facility, for example, was a positive feature of the online books due to being '*very beneficial for some of the children who aren't as eager to read, as they can listen to the book rather than having to look at the words'*.

Although there were differentiated books available, the class teacher explained that one of the disadvantages of the current online books was that the range of books available was limited for the lower group and were not '*challenging enough as the children wanted books that were not in the 'Jack and the Beanstalk'*.

This was not the case, however, for the top group who found the books challenging due to the differentiated range that was available. However, overall the class teacher commented positively on the range of texts available, as the pupils had been able to experience a variety of styles and genres.

With regards to choice, the class teacher explained that the pupils did not have the option to choose which books they wished to read from what is available, due to the class teacher assigning books to different reading groups that were appropriately matched to their reading ability. However, she noted that the pupils enjoyed seeing the books that had been assigned in their library.

5.2   Pupils' perspectives of The Learning Cloud

In terms of access to technology outwith school, 15 pupils (75%) have a personal tablet device, three pupils (15%) have a shared family device and two pupils (10%) have no device. Looking at the range of devices used to read ebooks at home, Table 2 summarises responses to question 6 "What devices do you use to read the SmartReads ebooks at home? You can choose more than one answer." A range of devices was used to read the ebooks, with just under half of the pupils using a tablet device. The pupils used the 'other' category to provide more detail e.g. "on my ipad and phone".

Table 2   Devices used to read ebooks at home

A	Tablet device	44%
B	Mobile phone	11%
C	Laptop	15%
D	Computer	15%
E	Other	15%

The pupils were asked "Do you read the SmartReads ebooks at home and if so how often? Please choose one of these answers". In response, 19% of the pupils did not read the online books at home, 62% only read the online book which is for homework, and 19% read all the books they could access in their own time. One pupil choose two options – 'No I do not read the online books at home' and 'I read all the online books that I can access in my own time'.

In response to the question "Who do you read the SmartReads ebooks with at home?" 91% of pupils read the ebooks alone and 9% read the ebooks with an adult. Reading with sibling(s) and reading with friend(s) each received a nil response. The pupils were able to choose more than one answer.

In relation to location, Table 3 summarises responses to question 8 "Where do you read the SmartReads ebooks? You can choose more than one answer." The pupils accessed the ebooks at home and school, however there was one pupil who only accessed them at school. The pupils used the 'other' category to provide more information e.g. "I read it at home in my bedroom".

Table 3   Location for reading ebooks

A	At school	10%
B	At home	43%
C	At school and at home	33%
D	Other	14%

In response to the question **"**If you had the choice of how you could read a book which one would you choose and explain why?" 17 pupils (85%) indicated a preference for a paper book and three (15%) for an online book.

Table 4 summarises analysis of the responses to the second part of the question "If you had the choice of how you could read a book which one would you choose and explain why?' Five categories were identified, namely Choice/Preference, Easier, Enjoyment, Learning Styles and Personalisation and Technology.

Table 4   Reason for choice of type of book

Category	Pupils	Parents
Choice/ Preference	Choice/ Preference (1)	Enjoyment (1)
Easier	Easier (3)	Learning Styles and Personalisation (1)
Enjoyment	Enjoyment (4)	Technology (1)
Learning Styles and Personalisation	Learning Styles and Personalisation (5)	
Technology	Technology (10)	

The majority of responses categorised as technology referred to negative aspects of the experience. Seven pupils referred to the problem of pages in books taking too long to download. For example, one pupil, referring to paper books, stated that there was '*no lag when you flip the pages*'. Two pupils mentioned pupil did not like the light from the screen in their face. One pupil, who noted a preference for online books, commented positively on the technological aspect saying that '*they don't loose your page*' (it should be noted that this pupil is referring to a Kindle device).

Under the category 'Learning Styles and Personalisation', three pupils indicated a preference for holding a paper book with one pupil explaining that it allows her '*to get away from technology*'.   Two pupils commented that it helped them visualise the story with one stating 'i can picture it more in my head'.

Four of the pupils' statements were categorised as 'Enjoyment'. These comments were evenly split between two pupils who '*liked*' reading paper books and two pupils who thought that the online books were '*more fun*'.

Under the category of choice/preference, one pupil explained that they preferred reading a paper book because '*you can take it anywhere you want*'.

Finally, three pupils mentioned that they found the paper books easier to read.

There were two open questions which invited comments about reading ebooks. These were "Tell us what you like about reading the SmartReads ebooks**? "** and "Tell us what you don't like about reading the SmartReads ebooks? "

Table 5 summarises analysis of the responses to the first of these questions. Eight categories were identified by the pupils, namely Ease of use, Enjoyment, Choice, Learning Styles and Personalisation, Motivation, Multimedia, Range and Technology. The categories of the parents will be discussed in section 5.3.

Table 5   What the pupils liked about SmartReads ebooks

Category	Pupils	Parents
Choice	Choice (2)	Choice (1)
Ease of use	Ease of use (2)	Enjoyment (1)
Enjoyment	Enjoyment (5)	Technology (1)
Learning Styles and Personalisation	Learning Styles and Personalisation (4)	
Motivation	Motivation (1)	
Multimedia	Multimedia (2)	
Range	Range (1)	
Technology	Technology (3)	

Four of the pupils' five comments categorised as 'enjoyment' were positive with the pupils commenting that they liked reading the books because they were '*good', 'fun' 'nice'.* Two pupils stated that the online books were easy to use. Two pupils specifically commented on the multimedia aspect of the online books including the music, sounds and videos. Two pupils commented on positive aspects of the technology such as the ability to be able to read books online and to use different technology e.g. iPad. One pupil took the opportunity to comment on technological difficulties with a second book that was read. Four pupils commented on the facility of changing aspects of the text (such as colour and size of fonts) to suit their learning style. One pupil stated that he/ she liked the fact that they could choose which book they wanted to read. One pupil commented that the online books encouraged him/ her to read more and one pupil liked the range of books that were online where her favourite childhood book was available.

Table 6 summarises analysis of the responses to the question "Tell us what you don't like about reading the SmartReads ebooks?" Five categories were identified, namely Choice, Enjoyment, Learning Styles and Personalisation, Multimedia and Technology.

Table 6   What the pupils do not like about SmartReads ebooks

Category	Pupils	Parents
Choice	Choice (2)	Technology (2)
Enjoyment	Enjoyment (2)	
Learning Styles and Personalisation	Learning Styles and Personalisation (2)	
Multimedia	Multimedia (1)	
Technology	Technology (14)	

Fourteen of the pupils commented on the technological aspect of using online books. The main issue raised was that the books relied upon wifi thus resulting in delays in the pages loading. As one pupil stated '*how it is online, how you need wifi, how they can la… how you could be half way through your book when it atops [sic]'.* One pupil mentioned that they did not like the screen light.

Other reasons for not liking the ebooks included the pictures and stories, a preference for holding a book and that it made a pupil use his/her iPad more.

The pupils were given an opportunity to provide additional comments at the end of the questionnaire. Nine categories emerged from analysis of the qualitative data. The findings are summarised in Table 7.   There is no comparative analysis with parents as neither parent commented.

Table 7   Additional comments about The Learning Cloud

Category	Pupils
Choice	Choice (1)
Easy to use	Easy to use (2)
Enjoyment	Enjoyment (9)
Knowledge and Understanding	Knowledge and Understanding (1)
Learning Styles and Personalisation	Learning Styles and Personalisation (3)
Motivation	Motivation (2)
Multimedia	Multimedia (3)
Range	Range (7)
Technology	Technology (3)

Just under half of the pupils who responded stated that they enjoyed reading the ebooks. However, three pupils did not enjoy ebooks. One of the pupils commented that they did not like some of the videos as they were '*so grusome [sic] and very scary which would be very unstuteble [sic] for younger kids which might be reading with an older sibling and they might have nightmares about which could really scare them and parents would blame it on the company and that would not be a good thing'*.

Seven of the pupils commented on the range of books. Three pupils felt that the books were not suited to their age range and style of reading and mentioned that they wanted more '*proper'* or '*decent'* books. For example, one pupil said, '*i wish yhere [sic] was more adult like stories because some of the stories are FAR to easy for me'.* Another pupil suggested that there should be an age limitation on some books due to him/ her feeling that the content was not child friendly and requiring '*ome [sic] more nice characters'*. This was in contrast with another pupil who wanted more fighting books. Two pupils said that they would like to have been able to access more books in different languages.

The pupils came up with a number of ideas of ways to improve the product and how it is being applied. One pupil suggested having an App to access books. Two pupils mentioned the possibility of the books having the option of bigger fonts. As one pupil explained, '*bigger fonts because i do not have very good eye sight'.* To overcome this problem, one pupil proposed having a '*micro magnifying [sic] glass'.* The pupils provided suggestions for further multimedia improvement using avatars and interactive games. One pupil commented that it would be good if the online books had reward systems. Finally, one pupil suggested that the option of online support would have been helpful when they experienced a problem.

5.3   Parents'/Carers' perspectives of The Learning Cloud

In terms of access to technology outwith school, parents reported that both children had a personal tablet device.

Looking at the range of devices used to read ebooks at home, parents reported that one child read the online books using a laptop and tablet device whilst the other child only used a laptop. Neither of the children used a computer or 'other 'device.

In response to the question "Does your child read the SmartReads ebooks at home and if so how often?" both children only read the online books for homework.

Parents were asked "With whom does your child read the SmartReads ebooks with at home?" and were able to select more than one answer. Parents reported that one child read the ebooks alone and with an adult whilst the other child read the ebooks by him/herself. None of the children read the ebooks with their siblings or friends.

In relation to location for reading, parents were asked "Where does your child read the SmartReads ebooks? You can choose more than one answer." Both children read the books at school and home.

With regard to perceived preference for ebooks/paper books, parents were asked "If your child had the choice of how to read a book which one would he/she choose and explain why? " Both children would prefer to read a paper book, according to their parents. Table 4 summarised analysis of the responses to the second part of the question. Three categories were identified, namely Learning Styles and Personalisation, Technology, and Enjoyment. For example, one parent said that her daughter preferred to read paper books *'as she can see how much she has read and feels more involved with the text*.' One parent stated that his/her child 'loves to read paper books'. There was one negative comment about technological aspect of using online books as '*paper books don't buffer'.*

There were two open questions in the parent questionnaire which invited comments about reading ebooks. These were "What does your child like about reading the SmartReads ebooks? " and "What does your child not like about reading the SmartReads ebooks? "

As noted in section 5.2, Table 5 summarises analysis of the responses to first of these questions. Eight categories were identified in the pupils' responses, namely Ease of use, Enjoyment, Choice, Learning Styles and Personalisation, Motivation, Multimedia and Range and Technology. In contrast, three categories were identified in the parent data. Classified as 'Enjoyment', one parent commented that his/her child found the ebooks *'funny'.*

Table 6 summarises analysis of the responses to the second question "Tell us what you don't like about reading the SmartReads ebooks?" Five categories were

identified by the pupils, namely Enjoyment, Choice, Learning Styles, Multimedia, and Personalisation and Technology. In contrast, only one category was identified in the parents' responses. Both parents commented on technological issues encountered using the ebooks as they are *'not always able to connect'* and *'they buffer a lot'*.

5.4 Impact of the resource on pupils' level of interest, engagement and attitude towards reading

One of the responses to the question in the pupil questionnaire "Tell us what you like about reading the SmartReads ebooks?" indicate that the use of online books led to a change in that pupil's level of interest, engagement and attitude towards reading. The pupil commented that *'I like to read it because it encourages me to read more'*.

With regards to the class teacher's views pertaining to the impact of The Learning Cloud on pupils' level of interest, engagement and attitude towards reading, she felt that reluctant readers and those who found it difficult to sit still were now showing more interest and engagement towards reading.

5.5 Impact of the resource on the amount, type and range of literature the pupils are reading

One of the objectives of the research was to evaluate the impact of use of The Learning Cloud on the amount of reading the pupils were engaged in as well as the diversity of reading material. One of the questions posed in the pupil questionnaire was "How often were you reading at home before you started using the SmartReads ebooks? Please choose one answer." Table 8 summarises the pupils' responses.

Table 8   Frequency of reading at home before introduction of resource

A	Never	30%
B	One or two days per week	20%
C	Three of four days per week	5%
D	Five or six days per week	15%
E	Every day	30%

Six of the pupils (30%) never read at home, 5 (25%) read a few days per week (B+ C combined) and 9 (45%) read most days or every day (D+E combined).

The pupils were then asked "How often are you reading at home now? Please choose one answer." Table 9 summarises the pupils' responses.

Table 9   Frequency of reading at home after introduction of resource

A	Never	15%
B	One or two days per week	25%
C	Three of four days per week	10%
D	Five or six days per week	20%
E	Every day	30%

Three of the pupils (15%) never read at home, 7 (35%) read a few days per week (B+ C combined) and 10 (50%) read most days or every day (D+E combined).

These findings suggest that the introduction of The Learning Cloud had impacted on the amount of reading the pupils were doing at home. There was an increase (70% to 85%) in the number of pupils who were reading at home and a slight increase (45% to 50%)in the number reading most days or every day.

Looking at the parents' responses to the question "How often did your child read at home before he/she started using the SmartReads ebooks?" one child read nearly every day (option D – 5 or 6 days per week) whilst the other child read every day (option E). Following the introduction of the resource, the responses were the same. The small sample size and the fact that both pupils were regular readers at home could explain the absence of a positive change in reading habits.

With regards to the class teacher's views pertaining to the impact on the amount, type and range of literature that the pupils were now reading, she noted that the pupils were now experiencing a greater range of reading material as the SmartReads ebooks were being used in addition to the normal reading scheme. They were also being experiencing a variety of genre and styles.

5.6   Impact of the resource on developing pupils' digital literacy skills

One of the objectives of the research was to evaluate the impact of the use of The Learning Cloud on the pupils' confidence in using digital modes of learning. One of the questions posed was "How often did you need to ask for help using devices like smartphones, tablets, laptops, and other computers before you started using the SmartReads e-books in school? Please choose one answer." Table 10 summarises the pupils' responses.

Table 10   Requesting help with technology prior to introduction of resource

A	All the time	0%
B	Often	10%
C	Sometimes	19%
D	A few times	29%
E	Never	43%
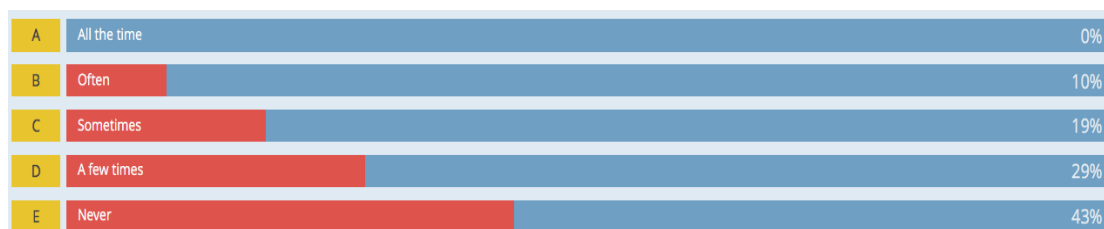
Nearly half of the pupils (43%) never requested help, 48% asked for help a few times or sometimes (C+D combined) and 10% requested help often or all the time (A+B combined). One pupil chose two options, namely 'sometimes' and 'often'.

The pupils were then asked "How often do you need to ask for help in using devices such like smartphones, tablets, laptops and other computers now? Please choose one answer." Table 11 summarises the pupils' responses.

Table 11   Requesting help with technology after introduction of resource

A	All the time	0%
B	Often	10%
C	Sometimes	20%
D	A few times	25%
E	Never	45%
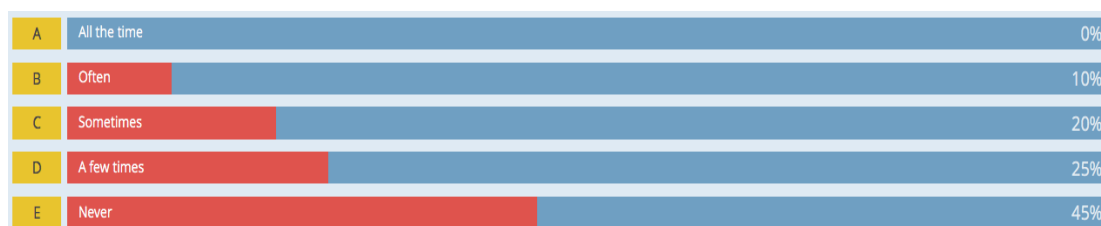
Nearly half of the pupils (45%) never requested help, 45% asked for help a few times or sometimes (C+D combined) and 10% requested help often or all the time (A+B combined).

These findings suggest that the introduction of The Learning Cloud did not impact on the pupils' digital literacy skills with regard to request for help with technology.

Parents were asked "How often did your child ask for help using devices like smartphones, tablets, laptops, and other computers before he/she started using the SmartReads ebooks in school?" They could select one answer from 5 options: all the time; often; sometimes; a few times; and never. One parent selected 'often' and the other selected 'never'. Following the introduction of the resource, one parent selected 'sometimes' and the other selected never. This appears to indicate that there was a slight shift with one child asking for help less often. It is not possible to generalise these findings to all the parents of children in the class given the small sample size.

Section 6   Conclusion and Recommendations

The aim of the study was to explore the use of The Learning Cloud in a composite class in a primary school in one local authority in Scotland. It was intended that the findings would be used to inform the future development and application of this product in the primary school context and thus support and enhance approaches to the teaching and learning of literacy.

The evaluation took account of the views of the class teacher, pupils and parents. It also set out to measure the impact of the resource on pupils' level of interest, engagement and attitude towards reading; the amount, type and range of literature the pupils are reading; and developing the pupils' digital literacy skills.

6.1   Summary of Findings

There were a number of positive features of the resource that were commented upon by the class teacher, pupils and parents. The class teacher was positive about the ways in which it supported her planning, management and organisation and assessment of the pupils' learning. A number of features of The Learning Cloud enable personalisation of learning including the ability to be able to change the font and highlight parts of the text. The class teacher and the pupils perceived this facility in a positive light. Also viewed in a positive manner by both the class teacher and pupils (not mentioned by parents) were the multimedia features of the resource.

The main negative factor pertained to ease of use of the ebooks out with the school setting.   This was affected by factors out with the control of the developers of the resource. The class teacher, pupils and parents commented on some of the technological difficulties encountered by the pupils when accessing the ebooks at home. These difficulties appeared to be due to poor wifi speeds in the participants' rural location. This led to the materials not downloading fast enough and impacting on the natural flow of the reading process. In addition, although the pupils had experience of using a range of technological devices at school and home, there appeared to be some issues due to the different tablet devices that the pupils had access to at home. Another perceived disadvantage of the resource, noted by the class teacher and some the pupils, was the range of books available. Specifically, the class teacher referred to the limited range of books available for the lower group. This was in contrast to the differentiated books available for better readers in her class. This appears to align with some pupils' views about the books not being suited to their age range and style of reading.

There was some evidence of impact of using The Learning Cloud on the pupils' level of interest, engagement and attitude towards reading. The class teacher was new to the school and was therefore unable to comment on pre- post-differences. However, she was able to compare the pupils' level of engagement with ebooks compared to paper books and noted that the pupils, especially

reluctant readers, appeared more motivated when engaging with the online comprehension materials. She attributed increased motivation to a number of aspects, including differentiated books, and multimedia. Only one of the pupils made a comment about the ebooks encouraging him/her to read more.

There was some evidence that use of the resource had an impact on the amount, type and range of literature the pupils were reading. The class teacher noted that the pupils were having experience of a greater range of reading material as the ebooks were being used in addition to the normal reading scheme. From the pupil data, there was an apparent increase in the amount of reading the pupils were doing at home. There was no change reported in the parent data but this could be attributed to the small sample size.

It is difficult to draw any conclusions regarding the impact of using The Learning Cloud in developing the pupils' digital literacy skills. There was no change in the pupil data. Although there was a slight improvement in the parent data, it is not possible to generalise these findings given the small sample size.

The need to balance the use of online books with the use of paper books was an emergent theme. There was a clear message that the pupils had a preference for paper books. Partially, this could be explained by the technology difficulties that were encountered in the pupils' homes, but it also reflects a preference to hold a real book.

6.2   Recommendations

A number of recommendations regarding future developments of The Learning Cloud are made below.

The company should consider:

1) extending the range of books available to children with different literacy levels to ensure that books are age appropriate;
2) providing children with an additional range of books that the children can choose from, purely for personal use rather than only related to what the class teacher has assigned in relation to their school work;
3) enabling the class teacher to assign a book to a group/ class of children rather than only being able to do this on an individual basis;
4) expanding upon the multimedia features currently available by including, for example, avatars and interactive activities/ games;
5) developing the assessment aspect of the software with regards to the formative feedback and possibly including a type of reward system;
6) developing the accessibility features of the software to ensure that the software is inclusive with regards to how children learn;
7) possible solutions for eliminating or reducing technological factors that impact upon the children's learning.

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