Case Study 3

Tinto Primary School
Glasgow City Council

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Introduction

On the 9th of June 2016, Tinto Primary School in Glasgow was visited to investigate student and teacher experiences using Sumdog.

The school visit was undertaken by Andrew Gallacher who has eight years experience as Mathematics Education Coordinator at the University of Glasgow. He has much experience with all aspects of both primary and secondary education by involvement in Initial Teacher Education but also through policy development at a National Level with Education Scotland, Scottish Survey of Literacy and Numeracy and the Scottish Qualifications Authority.

The format of this visit was a structured one hour discussion with pupils based on themes that arose from recent online surveys. The initial plan was to involve a group of six pupils. However, due to the pupils' enthusiasm to become involved in the discussion and give their opinions about Sumdog, it was quickly agreed with the class teacher that the discussion would involve all 30 pupils in the Primary 4 class.

After the class discussion there was a 30 minute discussion with the class teacher, Mr. Bennett, to gather his ideas and thoughts on the following pre-prepared themes:

- What experience do pupils have in using computers for learning?

- What is liked about Sumdog?

- Do pupils enjoy learning maths? Were attitudes changed?

- Do pupils use Sumdog outside the classroom? If so are there any issues?

- What could be improved?

School Demographics

Tinto Primary School serves the area of south Glasgow including Darnley and Merrylee and has a pupil population of 454, with 22 full-time teachers.

25-30% of students at the school live in the 20% most deprived datazones in Scotland and more than 20% of students are from minority ethnic groups (Scottish Index of Multiple Deprivation, 2012).

Experience of Learning with Computers

After a series of short questions to put the pupils at ease with the session format, we began the more structured questioning which was to last for around an hour.

Pupils had tried several programs such as Poisson Rouge for learning language and Scratch for coding, but very few maths programs were mentioned. Pupils stated this was because they seldom found maths programs that matched what they were learning in class and the programs were boring and lacked progression. This was different to their experiences with coding where pupils liked the interface and the tasks they were given.

Mr. Bennett was very keen to develop ICT skills across the curriculum for his pupils. The central computer room was viewed as an excellent asset, but due to the size of the school population it was constantly in demand which limited computer availability.

Pupils were very positive in explaining how they supported fellow pupils when they had become stuck or had technical issues. Mr. Bennett encourage this as he felt it was beneficial for pupils to become confident in helping each other.

Training

A training session was organised for teachers, but unfortunately due to illness the class teacher had been unable to attend. Pupils had been shown how to use the program by the class teacher. He had demonstrated some of the features to the class and then allowed them to explore the site themselves as they had been so keen to get started.

Pupils explained with enthusiasm that they had been very comfortable learning to use Sumdog on their own as they found the website easy to use. When issues were encountered, pupils were happy to help and advise each other to overcome them.

Overall the pupil responses were very positive about the ease of use and the only delay in progress was in some pupils not quite grasping the aim of certain games. These pupils then said that when the format was understood they were very happy with tasks and subsequent progress. Any initial problems were minor did not deter their enthusiasm.

Sumdog Usage

Mr. Bennett used Sumdog with the whole class when he was able to book a central computer room. During these sessions pupils also practised coding skills using Scratch. The computer room was the main way the class accessed Sumdog so Mr. Bennett did not have any classroom organisational issues using Sumdog.

Mr. Bennett used information on pupil progress from Sumdog to personalise classroom work for individual pupils. This allowed him to support weaker areas and amend progression for topics that pupils were more confident with.

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Pupils were very enthusiastic about using Sumdog stating it was better than any other maths or numeracy program they had used. When asked, they said that Sumdog helped them understand the work they were doing in class and that it was fun to learn using Sumdog.

Coin rewards were also a great incentive for the pupils. Pupils enjoyed decorating their on-screen house and developing their character, or avatar, through using the coins they earned to buy new items and outfits. Pupils would like to see more items added to the on-screen store to allow further personalisation.

Pupils were motivated by the ability to compete against their classmates during the games and with pupils from around the world during Sumdog contests.

Contests are set by Sumdog on a regular basis to help engage pupils. Pupils can answer up to a thousand questions during the week long Sumdog contests which are open to all classes in the region that use Sumdog. A class average of the correct scores is calculated and then displayed in a contest leader board.

Nearly all of the pupils had been involved in a Sumdog contest where pupils compete against others from Glasgow or around the country. They had enjoyed this aspect of the website, especially as many pupils had won prizes.

Mr. Bennett endorsed the pupil comments and added that the game format was very encouraging for pupils to engage with.

Attitude towards learning maths

Pupils were keen to share that they had enjoyed learning maths with Mr. Bennett before using Sumdog. However, the overwhelming opinion of the class was that practicing maths was more fun when using Sumdog than it was when most of the work was from textbooks. Some pupils were very vocal that work from textbooks were very boring.

When asked to explain why they enjoyed using Sumdog, the response was that pupils could see their progress which allowed pupils to challenge themselves more. Pupils also liked the variety of questions asked on Sumdog.

Some pupils commented that they enjoyed the competitive element of Sumdog which motivated them to answer questions correctly in order to beat their classmates. Other pupils were keen to report that they thought their progress had improved through using Sumdog.

Pupils made it clear that they understood the importance of answering questions correctly on Sumdog in order to progress rather than guessing answers.

Sumdog use outwith the classroom

A number of pupils encountered issues accessing Sumdog outwith the classroom. The main issue was with home wi-fi connection, which by pupil accounts, were not always great. The second issue was with pupils using older technology at home and not having updated the software that was suited for purpose such as Internet Explorer.

Access to the internet was available through both school and public libraries and there was evidence that a number of pupils had taken the opportunity to use these facilities.

It also came across very clearly from pupils that they felt able to help fellow pupils to rectify some of the access problems. This came about through usage in class and by organised discussion where pupils were able to share knowledge and experience.

Sumdog use outwith the classroom also increased parent and adult awareness of Sumdog. The class teacher commented that the attitude of parents and carers towards using Sumdog to practice maths skills was extremely positive.

Many of the adults commented on what they felt were the positive effects of their children using Sumdog. These included seeing pupils enjoy maths homework and being able to view pupils' progress.

Pupils enjoyed the opportunity to discuss their progress and demonstrate their work to adults. This was well received and discussed with the class teacher in a very positive manner.

Mr. Bennett commented that he would like greater access to computers for his pupils and would like the subscription to Sumdog to continue as he had seen the positive effect it had on his class over the last 3 months.

Suggestions for improvement

Pupil comments were very imaginative when discussing possible customisation of their characters. Some of the costume ideas were based on projects the class had been studying such as pirates.

The class would like to see more characterisation features to purchase with coins. They would also like to see an expansion of the playing area to include streets, blocks of flats or houses.

Additional games and adventures were also discussed and although some suggestions sounded like descriptions of console games already used there were many suggestions to enhance the features of existing games such as football.

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Advice to new users

Pupils

The advice of pupils to new Sumdog users was that they really need to try the questions and games as they would enjoy them. They also felt that the format was easy to understand, and then, any issues could be supported by fellow pupils.

There were several comments about persevering with the initial diagnostic test which may include some hard questions as the pupils understood this was the program trying to identify their ability level.

Teachers

The class teacher agreed that the website was easy to use. Mr. Bennett commented that it was important to let parents and colleagues know what Sumdog has to offer. This allowed parents and carers to talk to their children about Sumdog and what they were learning. This was invaluable to both the children and adults.

Mr. Bennett also felt quite strongly that Sumdog could also be used successfully with pupils younger than his Primary 4 class. He would like to use his pupils to act as mentors to help younger Primary 2 and Primary 3 pupils get started.

Summary

Pupils felt strongly that the use of computers, and especially Sumdog, had increased their enthusiasm for learning mathematics compared to using textbooks or worksheets.

There was a very strong focus on sharing information and working together that made the use of Sumdog very straightforward and popular for all pupils.

The additional information that Sumdog produced in relation to progress helped the class teacher in lesson planning and teaching of certain topics. This was especially the case after having been absent due to illness for some weeks.

Pupils were very keen to use Sumdog outside the classroom. This was because they felt confident using it and they really liked sharing their progress with both parent/carers and classmates.

The very imaginative ideas about providing additional games and rewards have been used to inform future developments of Sumdog.

References

Scottish Index of Multiple Deprivation, 2012, full dataset available here: http://www.gov.scot/Topics/Statistics/Browse/School-Education/Datasets/contactdetails