

## **The use of digital platforms, such as Sumdog on learner's engagement.**

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### ***Rationale***

Engagement describes the pupils' positive perceptions and feeling about their school, teachers and peers, and their active participation in school-related activities and learning. Pupil participation and engagement in school enhances commitment to learning, achievement, academic aspirations, enjoyment in school, self-esteem, and optimism for the future (Covell, 2010). Research with Primary school-aged children shows that pupils who like their teachers and classmates, and whose teachers have high expectations for them, tend to be more motivated to put sustained effort into their schoolwork. (Clerkin and Creaven, 2013). As a result, these engaged pupils, who feel like they belong and are comfortable in a learning environment, tend to show better academic performance than less engaged peers. It can be stated then that pupil engagement is a fundamental aspect of the teaching and learning process in which negative and positive emotion plays a significant part.

In the primary school, there are several different approaches used with the aim to improve pupil engagement and performance. These include pupil personalisation and choice, appropriate contexts for learning and meaningful conversations with teachers and peers (Vezzani, 2019). However, with the rise of digital learning, it has become increasingly difficult to sustain high levels of engagement with pupils in a traditional classroom setting. Therefore, the use of digital platforms has become essential tools in sustaining levels of engagement and increasing learner achievement in numeracy and literacy. According to Leger (2019) when a digital app was more useful, more enjoyable, and easier to use, learner's achievement increased. Different research projects have found that the use of digital platforms can lead to a broad scale of improvement within learning which evidently adds to children's attainment and achievement. An example of an effective digital platform is Sumdog. This digital platform provides choice and challenge, as well as a method of measuring children's progress based upon the Curriculum for Excellence (CfE).

Our group picked out a common interest in pupil engagement and decided to focus on different digital platforms that suited the needs and abilities of our pupils. This approach is an effective way to measure learner engagement and progress within a contextual learning environment as we all teach different age groups. The enquiry will examine the connection between digital platforms and children's achievement and engagement in maths.

### ***Aims***

The aim of this enquiry was to evaluate the success of using digital platforms such as sumdog, to improve the engagement and performance of children in their learning in maths during remote learning.

## ***Methodology***

The research stage of this enquiry was conducted over a period of 4 weeks within a primary 4 class. The class consisted of 28 pupils of which 4 pupils were chosen to be the focus group for the enquiry. The focus group of children are those who were perceived as high achievers. It was felt they would benefit most from this intervention process. At the beginning of the enquiry, a survey was given out digitally to the whole class to gain an understanding on their perceptions of using digital platforms such as sumdog, its purpose and its value of using Sumdog in their learning. The questions were primarily open-ended questions.

During the process of the enquiry, at the beginning of each of the maths lessons, the learning intention and success criteria was shared with the children in written form on Teams. This provided children with a goal to work towards during their numeracy lesson. During each lesson, the children were either asked to complete a sumdog starter challenge to consolidate their prior learning in maths or to complete a sumdog finisher task to revise new learning. The children were rewarded with coins as a motivation to complete each challenge. During the time of the enquiry, the children were asked to also complete two diagnostics tests, one at the beginning of the enquiry and one when the enquiry was finished. This allowed for a comparison of the children's score to be made from the start of the process throughout to the end of the intervention to assess whether time spent on Sumdog caused an increase in the children's achievement.

After the 4-week process, the children were given out the survey again to see if their views on using Sumdog had changed, in particular, their confidence. This provided helpful feedback on the success of the enquiry in raising achievement and engagement within maths.

## ***Findings***

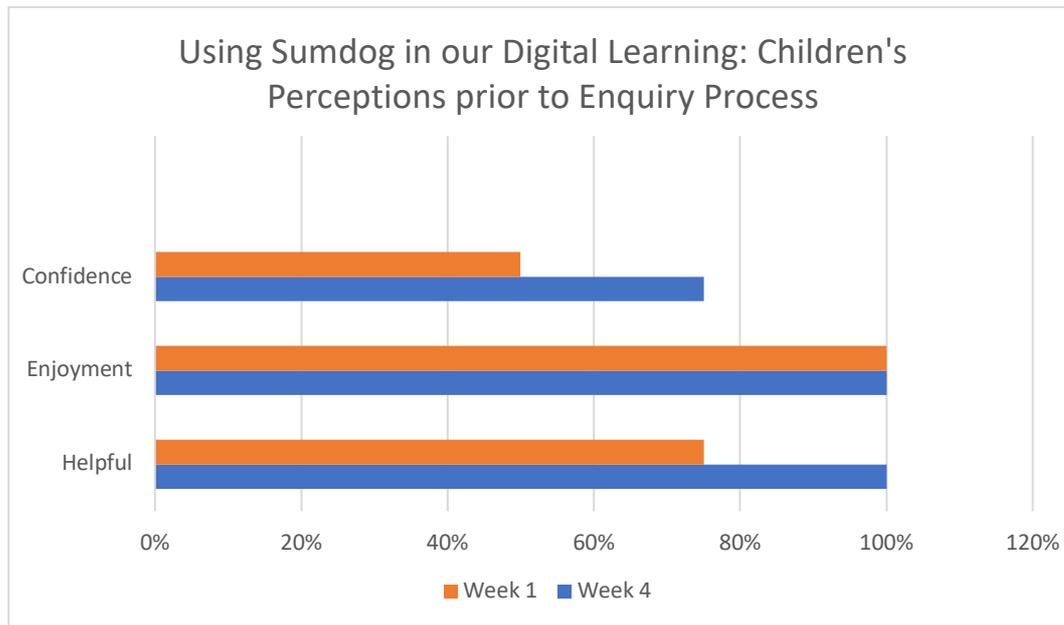
After the enquiry, the data gathered from the Primary 4 class was reviewed. In the process of reviewing the data, key themes were obtained.

### *Children's improvement in maths upon achievement*

Before the enquiry process began, the children already had some experience completing activities using Sumdog. At the beginning of the enquiry, 75% of the target children felt that using Sumdog helped improve their maths skills. Only 50% of the target children felt confident in completing challenges and assessments on sumdog and 100% of the target children enjoyed using sumdog as part of their maths learning. Throughout the enquiry process there was improvement in perceptions on using sumdog as part of their daily maths learning. By the end of the enquiry, all four of the target children acknowledged an increase in confidence when using sumdog and all believed it had a positive impact on their maths learning.

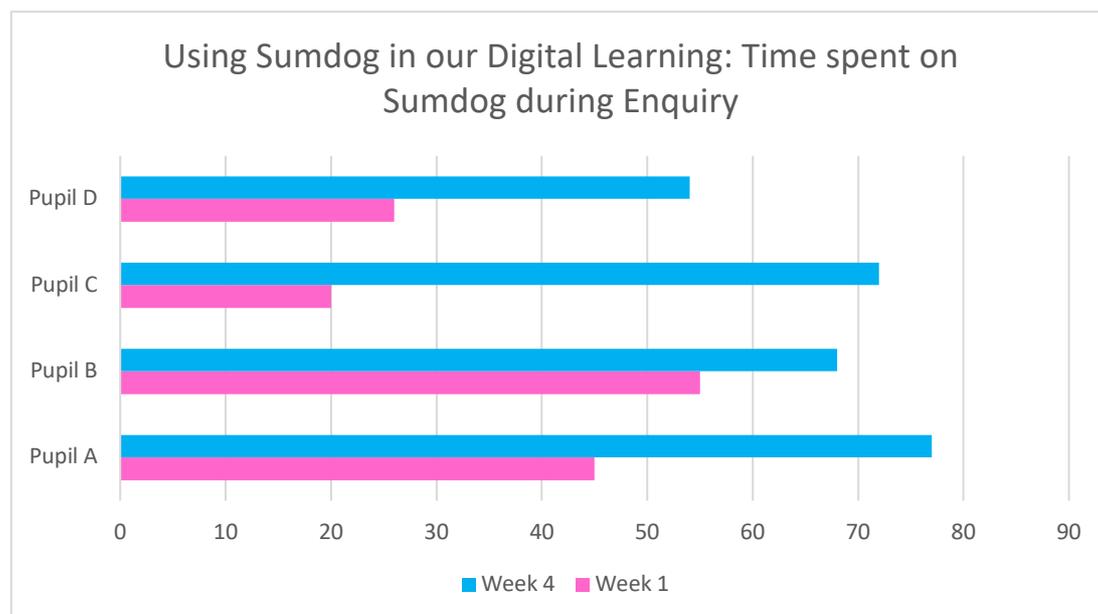
Furthermore, during the enquiry, the target children were far more likely to complete Sumdog challenges that had been set for them. Through observations and online interactions, it was clear that children displayed a higher level of engagement, especially when competing against peers in a class or local area competition. This was further supported by examining diagnostic test reports before and after the enquiry process was carried out. All four of the children

targeted during the enquiry either sustained or increased a level, based upon the Curriculum for Excellence experiences and outcomes.



*Children’s improvement in engagement with digital platforms*

During the first week of the enquiry, the four target children spent an average time of 36.5 minutes using sumdog to consolidate their maths learning and teaching. However, when compared against the average time spent on sumdog during the final week of the enquiry, these times showed a drastic increase for all four pupils. During the last week of the enquiry, the four target children spent an average time of 68.8 minutes on Sumdog.



## ***Conclusions***

To conclude, it can be surmised that the process of using digital platforms such as Sumdog created a positive impact on the engagement and performance of learners in maths. Throughout the 4-week enquiry, All four target children showed a greater level of participation when the use of digital platforms such as sumdog, was incorporated into their daily lesson planning. This was identified by comparing the time spent on sumdog before and after enquiry took place. The target children were also asked to repeat the questionnaire on their perceptions of sumdog. The results showed that all 4 children felt more confident compared to how they felt at the beginning of the enquiry. Therefore, it can be surmised that the target children developed greater levels of independence, motivation, and engagement, which in turn had a positive impact on their levels of achievement in maths.

## ***Implications for Future Practise***

The enquiry enabled a greater insight into how children perceive and engage with digital platforms as part of their learning and teaching within maths. Furthermore, it also highlights the importance of pupil challenge and choice when engaging and motivating learners in different concepts within numeracy and mathematics. As such, I will continue to incorporate digital platforms such as Sumdog in my planning as a way of engaging learners and tracking pupil progress to develop my knowledge and skills in this area further. A specific way that the process has impacted on my teaching is ensuring that pupil-led learning plays a central role in informing my planning. Agnese Vezzani (2019) states that open ended conversation and longer teacher- pupil interactions play a major role in the engagement and achievement of pupils. As a result, one to one discussion was carried out with each of the target pupils as to what kind of challenges interested them the most and was incorporated accordingly into lessons. Upon reflection, if I were to repeat the enquiry, I would perhaps conduct it over a longer period, to focus on one or two mathematical concepts in more detail. I would also consider using a wider ability range as the four target pupils were identified as high achievers and highly motivated. It would be interesting to investigate what motivate learners who have different barriers to learning. Nevertheless, I believe this type of enquiry possesses great potential in understanding the connection between the use of digital platforms and engagement and achievement of pupils. I would be interested to study the link between engagement and achievement spanning different curricular areas.

## ***References***

- Clerkin, A. & Creaven, A.M. (2013) 'Pupil engagement' in E. Eivers & A. Clerkin (eds) *National School, International contexts: Beyond the PIRLS and TIMSS test results*. Dublin: Educational Research Centre, pp. 33-51.
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Leger, P.M., Nguyen, T.A., Charland, P., Senecal, S., Lapierre, H.G. & Fredette, M. (2019) 'How Learner Experience and Types of Mobile Applications Influence Performance: The Case of Digital Annotation' in *Computers in the Schools*, 36 (2), pp. 83-104.

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## Appendix 1



### Using Sumdog in our Digital Learning (Primary 4 20/21)

Hi Olivia, when you submit this form, the owner will be able to see your name and email address.

1. How do you feel about using sumdog as part of your maths tasks? (1=not happy, 10= very happy)

1 2 3 4 5 6 7 8 9 10

2. Do you think using sumdog helps you improve your maths skills?

Yes  
 No

3. How confident do you feel using sumdog as part of your maths lessons? (1 = not confident, 10 = very confident)

1 2 3 4 5 6 7 8 9 10

4. Do you enjoy using sumdog as part of your digital learning?

Yes  
 No