# G54GPP

# Interim Report

# *Literacy games for Key Stage 1 children with dynamic difficulty for individuals produced by machine learning techniques*

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# Introduction

Literacy education is one of the formative parts of primary school education, but many pupils underperform in this area. Tackling this issue and finding a way of boosting literacy could have a dramatic impact on pupils’ overall education. The traditional methods of teaching will always have a role to play but schools and the wider education community should think about the new methods made possible by developments in IT. Schools have been slow to adapt because they need to be confident in the effectiveness of teaching methods and they may require additional staff training. So despite the availability of new classroom technology resources, many teachers do continue with traditional methods (“Slate evolved to paper and paper evolved to tablets”).

We believe educational games could be better designed and deployed so teachers can deliver education in a smarter way. Computer games have long featured in classrooms, but are seen as a fun distraction rather than a part of core curriculum delivery. Looking at the existing educational games, BBC Bitesize [ref] is the most common platform within the British school system. BBC Bitesize games are very specific, and are not suitable to be played multiple times because they follow a fixed structure and are only aimed to be played for a single session. Other commercial products such as KidsSpell [ref], Purple Mash [ref], similarly offer a similar format of but with a larger variety for games. The former however is based upon Adobe Flash Player, which is soon to become an unsupported plugin (Adobe, 2017), as well as being incompatible with IOS devices which have an 75.64% share of the tablets market (StatCounter, 2016/7). Schools are increasingly acquiring iPad’s in particular for educational purposes. KidsSpell also includes adverts which are inappropriate for children (KidsSpell, 2017).

Our solution is a suite of games themed under the name ‘WordZoo’. The games will initially focus on reading comprehension, spelling, and phonetics but this scope could be expanded later. The games will align with the national literacy curriculum. The games themselves are based on an existing project ‘Savannah School’ developed for G52GRP which focussed on the design and HCI aspect of games for young children. We will implement the findings of that project in our software deliverables. The WordZoo system will track pupils performance across all games, and will intelligently choose which words or concepts to present to pupils. The system will also present a teacher dashboard which will allow them to evaluate individual pupils’ performance, and give them feedback which allows them to intervene.

# Project Specification

# Motivation

Education is a critical task for creating a productive workforce and society, and the UK despite having one of the best resourced and developed systems still leaves some pupils under attaining. The 2017 Department of Education report [ref] identified that 24% and 30% of primary school pupils (\*\*\* ? \*\*\*) are below the expected level for reading and writing respectively. This means are significant number are falling behind. It is also important to think about the 26% and 15% (\*\* check \*\* ) who achieve above the expected level, and may not receive teaching to encourage their progress whilst the teachers focus on getting the rest of the class to ‘working at expected standard’. This ‘o-ne-size fits all’ approach to education does not get the best out of every pupil.

**Figure 1 Figure 2**

**Source:**

We hope to create a system that can boost the attainment of all pupils, by adjusting to their individual level and provided a personalised experience. If deployed in a classroom, this could allow teachers to focus on pupils who are below the standard. We have chosen to focus on the Primary School KS1 age group because of the low complexity of information to be delivered, and this requires simpler games and data compared to targeting GCSE education for example. However, the conclusions and methods developed during this project could definitely be reapplied in other educational contexts.

# Related Work

# Methodology

# Design

# Progress

# Conclusion

# Reflections

# References