Undergraduate Research Opportunities Programme

University of Reading

Developing a vocabulary app for maths problem-solving for Y5 pupils (EAL and non-EAL).

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Project description:

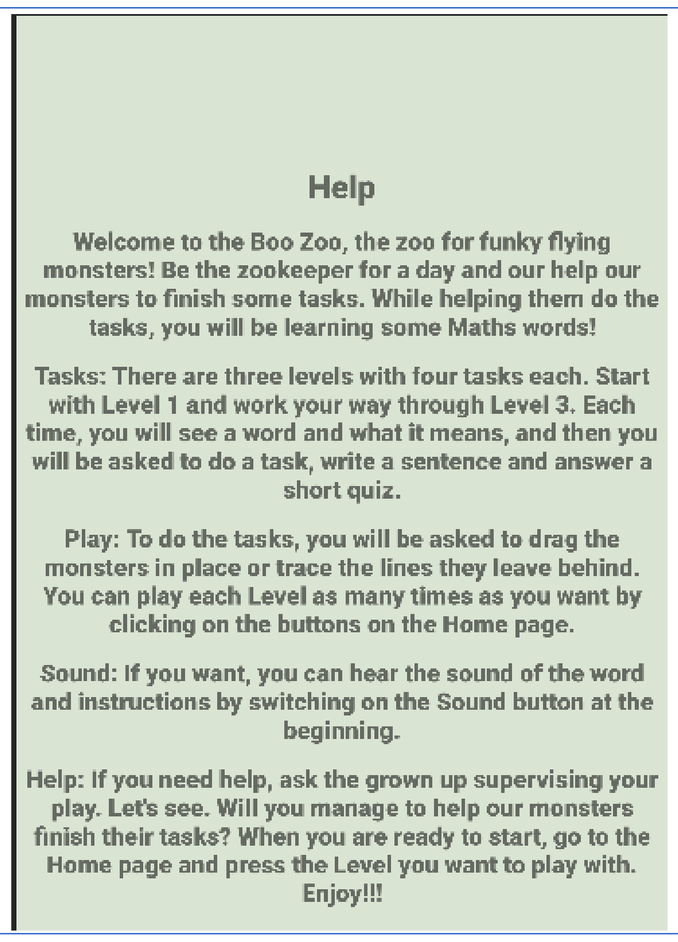
Students in year 5 were to learn maths using an app that incorporated drawing and creative writing rather than listening to a song or story to explain maths vocabulary. As well, we explored how the app could function as an accessible learning tool that children could use at home to close the COVID-19 learning gap caused by missed school time.

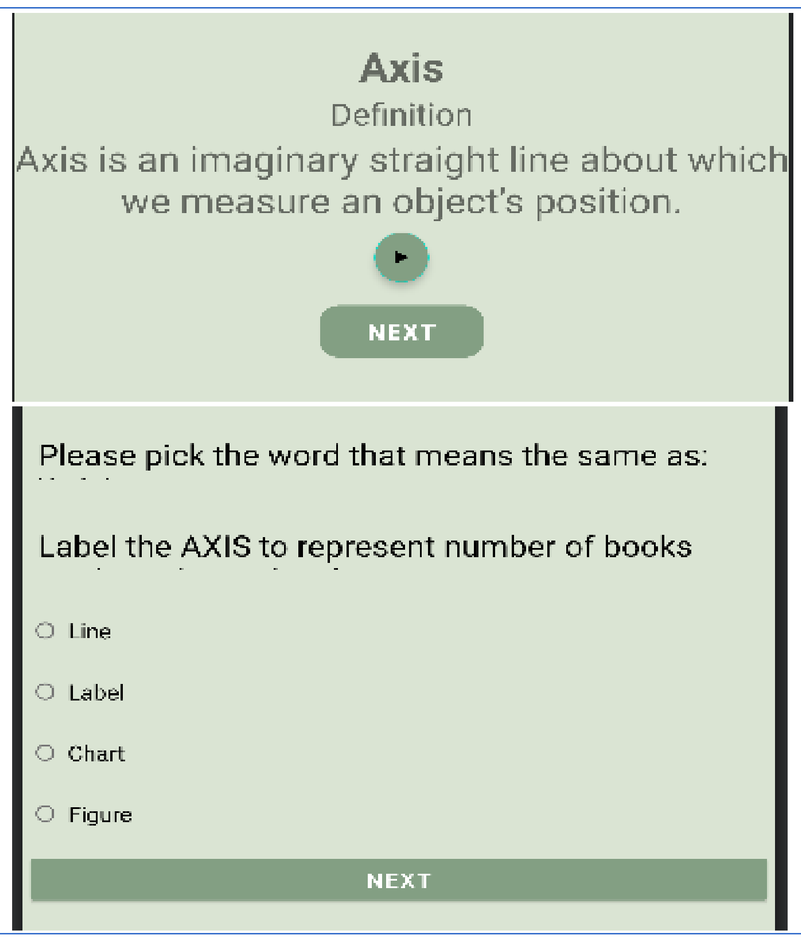
Aims of the project:

- To create an app and explore the use of it as a learning tool for maths-specific vocabulary.
- To teach year 5 students how to use the app independently.
- To measure their progress in maths vocabulary learning and maths problem-solving over a month of using it.
- To address the lack of an interactive tool that teaches STEM specific vocabulary to older children in a creative and evidence-based way.

Method:

We made a pilot app using android studio which we used to explain twelve specified words which students in year 5 would find difficult to understand. Our sample size for testing the app was 5 students. The goal of the app was to check if each word. We divided the twelve words into through the explanation given on the app for three levels based on the level of difficulty using the British National Corpus. For each task, we had the students look through the definition. There was also a task where the student had to drag and drop objects to show the meaning of the word explained before. After this we gave the student a quiz to see if they actually learnt the words using the app.





Findings:

After having the year 5 students test the app, we were able to answer some certain questions, like what was the student's background, if they liked the app or not and if they actually learnt anything with the use of the app.

1) The students' backgrounds:

Most of the students had a background in reading and languages and preferred those to maths. They were also more interested in learning other languages than learning maths. One student in particular who really liked maths said :" I like to learn new things. I like how you can use Maths in other subjects, for example science. I like that you can have problems and then find solutions to the problems." When asked what he didn't like about maths he said he liked it all. That was just one out of the sample size. Most of the other students said things like: "I find maths hard, but I like it when I can find the solution to a problem." Another said he did not like maths because sometimes he does not understand the key words used by teachers.

2) **How they felt about the app:**

All the students said they liked the app as it helped them learn the words that seemed more difficult for them as the tasks were presented in the form of a game and was interactive. Some specific things mentioned were being able to test their understanding of the words after playing the game and taking the quiz. Another thing mentioned was they liked the monsters used for the game and playing with the monsters was fun. They also mentioned that the game helped them with understanding the words because they had to follow the monsters to show them what to do on each task.

3) **Difficulty experienced:**

Unfortunately, some of them experienced some issues while using the app. The issue of not being able to drag the monsters according to the task given arose a couple of times. Some also felt that the quiz was a bit too long. Another mentioned that remembering the words was a difficult for him. Also, some of the students were not able to go back to the previous page when they wanted to.

4) **If they learnt anything from the app:**

Regardless of the issues faced when using the app, there were still positives in the aspect of what they learnt from the app. Some learnt new words or what they would normally classify as difficult words and how that would make their teacher happy that they knew so many new Maths-vocabulary. Others also learnt other meanings for words they thought they already knew. When asked if they would recommend the app to others, they all said they would as it was a fun way of learning maths and it was different from what they usually do in school.

Conclusion:

What we can get from the findings that that generally students prefer studying in a more fun than serious way and that helps them retain knowledge.

Recommendations:

The app could be improved upon to accommodate and fix the difficulties the students had with it. The features could also be improved too. The project would also run again with a larger number of students to confirm current findings.

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