

Reading Through Gaming In Primary Schools

A PILOT STUDY

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Introduction

- Game-based learning (GBL) is a well-established approach that incorporates game elements into learning processes (Smiderle et al., 2020).
- Board games have been recognised for their role in supporting literacy development (Smiderle et al., 2020).
- Despite the growing interest in GBL, the question remains: if we know GBL can improve literacy- how do we know which games present an appropriate level of challenge and opportunity for growth?
- There is limited research on how to assess the reading difficulty of board games.
- Hatcher (2000) developed a widely used scale for evaluating children's books based on linguistic and structural features.
- This scale has been applied by our Team to test readability of websites yet its application to board games remains unexplored.

Aims

- Aim 1: To adapt Hatcher's (2000) framework to identify features that contribute to the reading difficulty of a board game
- Aim 2: To assess the accuracy of the adapted framework in a Primary School
- Aim 3: To establish a positive correlation between a students reading accuracy during gameplay and their assessed reading level.

Methodology

- The sample included 72 students aged 5 to 8 years (Year 1 to Year 3) from a local UK primary school .
- Students were split into groups of 2-6, matched by similar reading levels where possible
- One researcher taught the gameplay to the students, whilst 2 others took running records during the game.
- Each board game was played for approximately 30mins .
- The board games were allocated to year groups based on the games provisional reading level and the children's assessed reading level (by their school).

Discussion

Our results demonstrated a strong correlation between reading accuracy and a student's reading level across 4 out of 7 games.

- There may be several methodological limitations to explain why:
 1. Games with a strong positive correlation were found to have consistent vocabulary difficulty across plays, while those with insignificant correlation varied more. Therefore repetition and familiarity may influence gameplay accuracy and should be controlled for.
 2. There was a low word count for many of the running records, where 21 records were excluded for having under 20 words (a single mistake would mean the accuracy was below 95%). This meant that each game had very few samples, making it difficult to form strong conclusions about the relationship between reading accuracy and game difficulty.

Results

- The collected running records were quantified into percentage accuracies for each students reading. A Pearsons correlation was conducted, comparing the percentage accuracy and reading level of each child across the 7 games.
- A very strong correlation was observed in Junior Colourbrain = $[r(3) = .958, p = .010]$, 5 Second Rule $[r(8) = .963, p < .001]$. and Monopoly Junior Level 1, with $[r(13) = .932, p < .001]$. A strong correlation was also demonstrated by Monopoly Peppa Pig Edition $[r(13) = .640, p = .010]$. However, there was no statistically significant correlation found with Unstable Unicorn $[r(13) = .010, p = .970]$, Cluedo $[r(14) = .226, p = .399]$ or with Brainbox $[r(15) = -0.780, p = .766]$

Fig 1: Junior Colour Brain

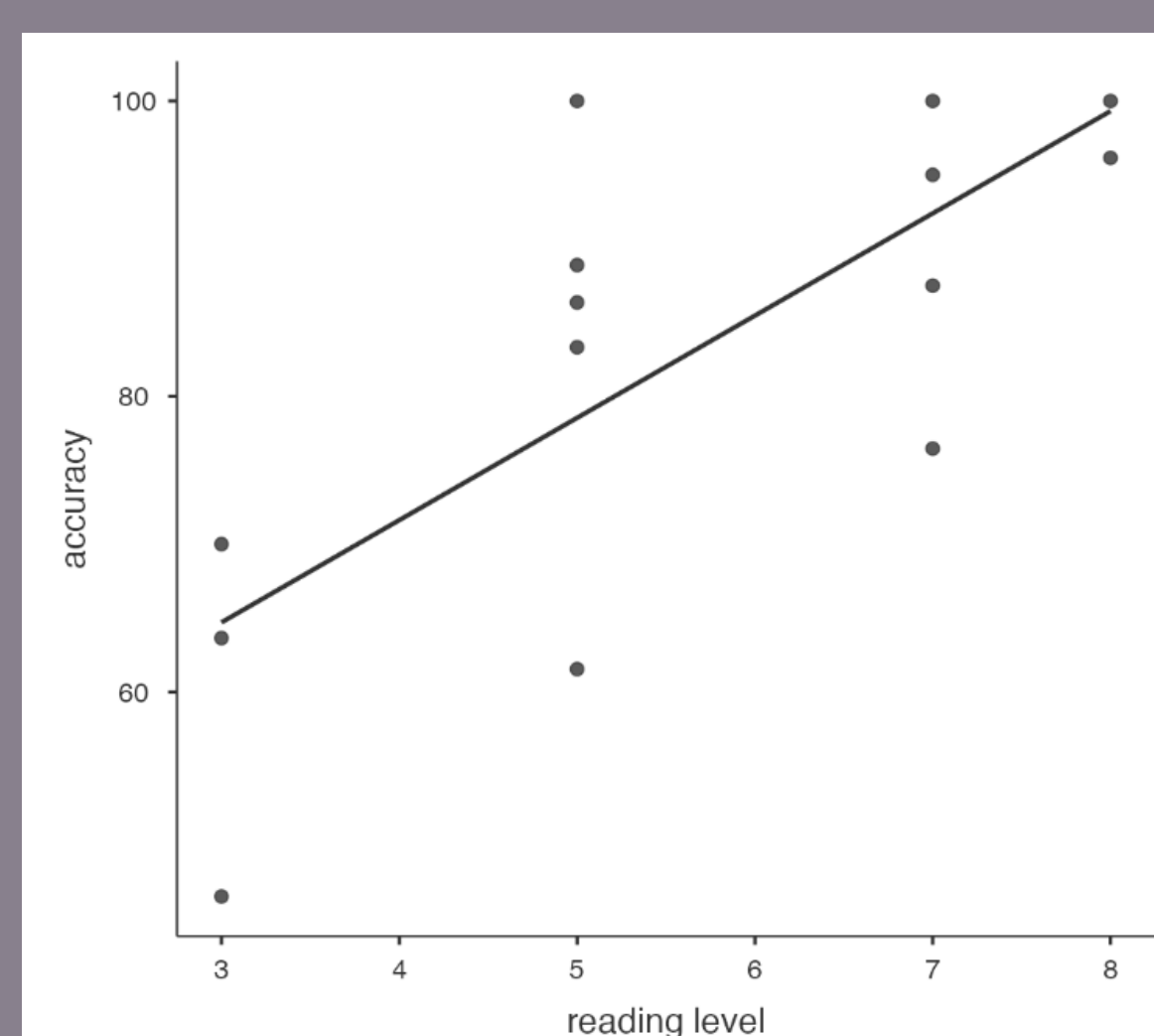


Fig 2: Monopoly Junior Level 1

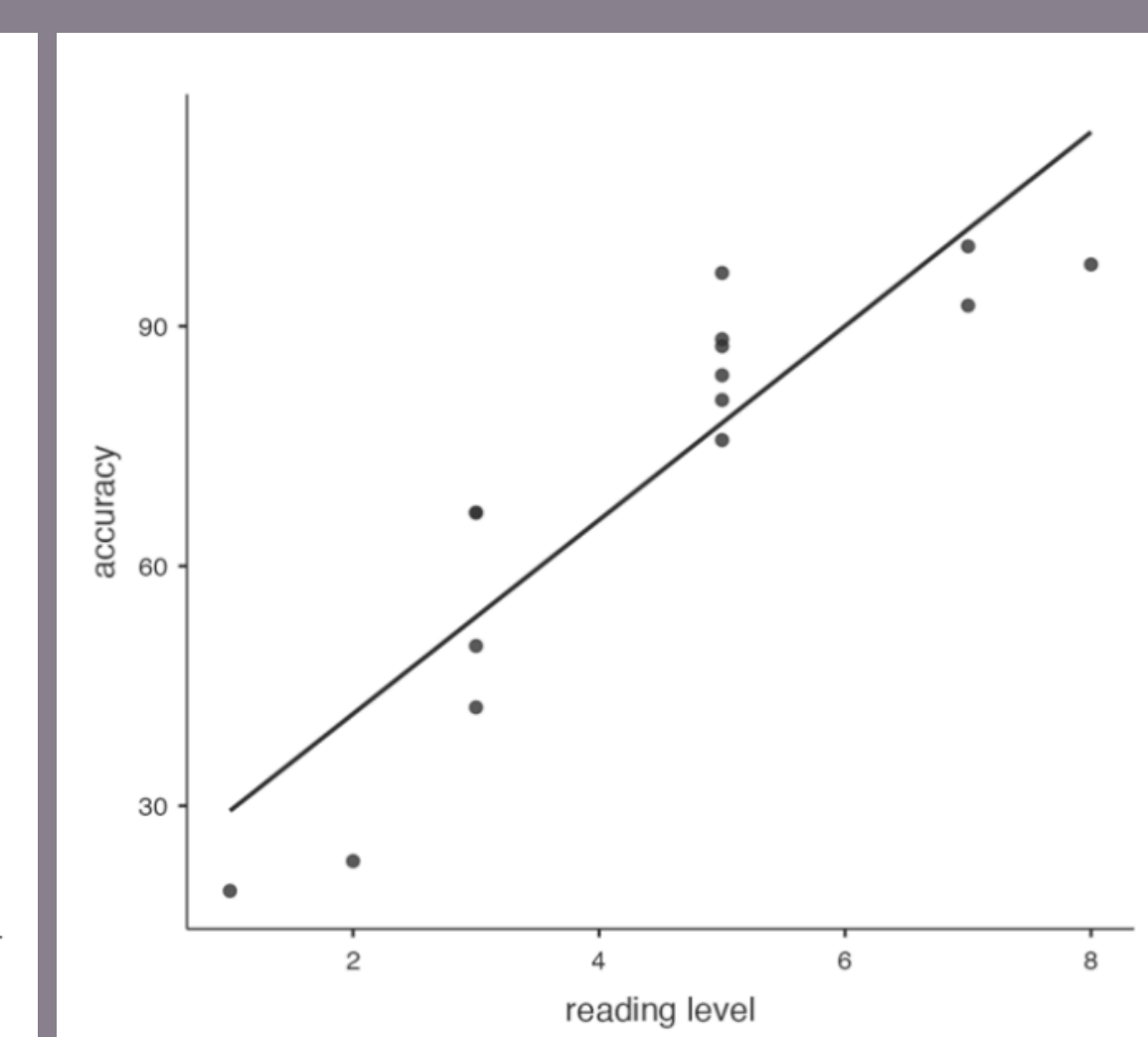
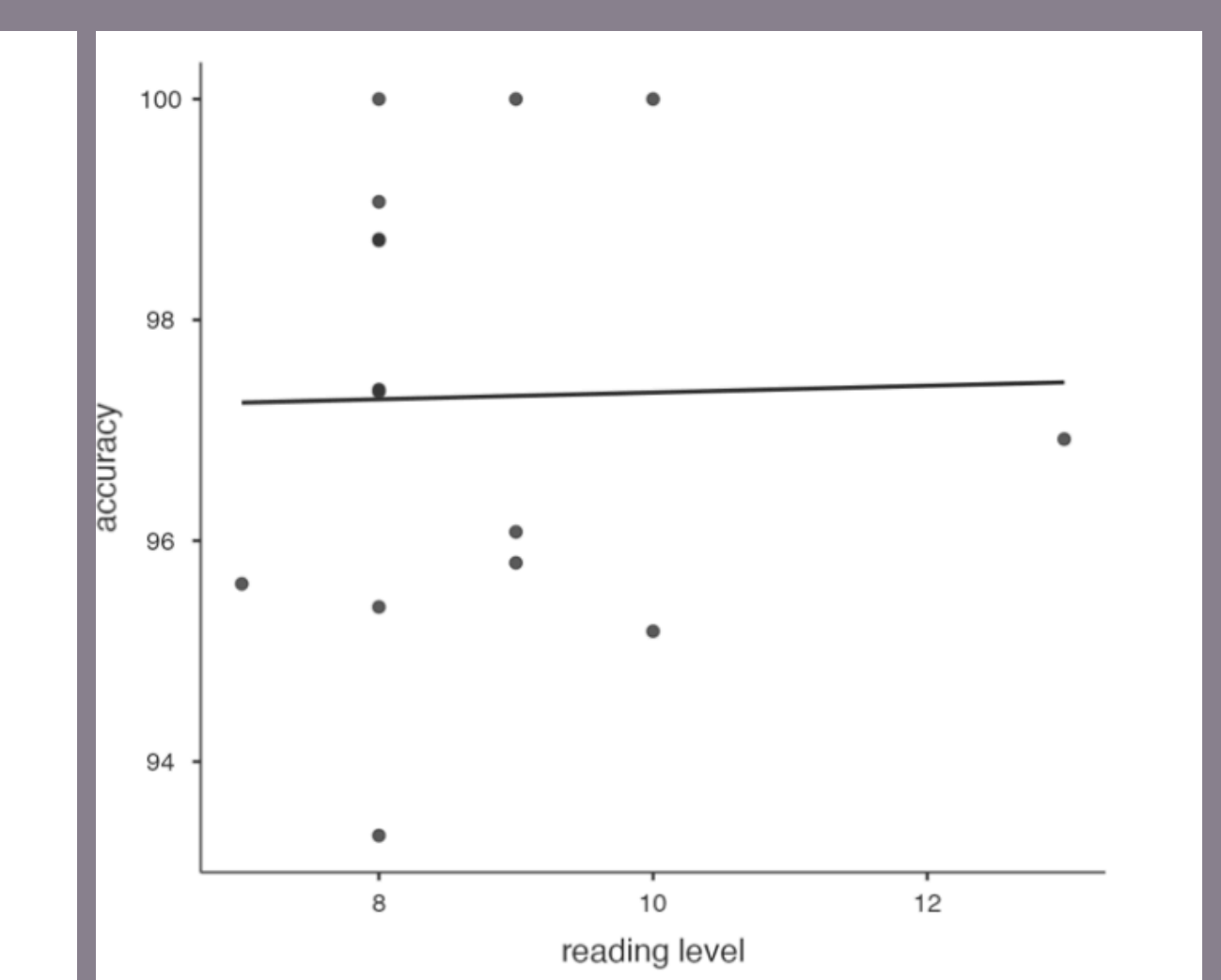


Fig 3: Unstable Unicorns



Conclusion

- The objective of this study revealed too broad to investigate within the limited time constraints and limited sample of our research project.- The data collected is therefore too limited to form definitive conclusions.
- Further research may utilise this pilot study as a foundation to build on and with a sufficient sample size, run a regression analysis to identify boardgame features that influence reading difficulty.

References

- Hatcher, P. (2000). Predictors of Reading Recovery book levels. *Journal of Research in Reading*, 23(1), 67-77. <https://doi.org/10.1111/1467-9817.00103>
- Smiderle, R., Rigo, S. J., Marques, L. B., Peçanha de Miranda Coelho, J. A., & Jaques, P. A. (2020). The impact of gamification on students' learning, engagement and behavior based on their personality traits. *Smart Learning Environments*, 7(1), 1-11. <https://slejournal.springeropen.com/articles/10.1186/s40561-019-0098-x>