Can using visualisation techniques help dyslexic children learn computer programming?

Abstract

People with dyslexia are over represented in the field of software engineering (Stein, 2018). There is a growing body of evidence that they excel at creative problem solving and at being able to visualise complex systems holistically. It would seem that software development is a field in which dyslexia confers advantages that override the problems dyslexics commonly have with reading, spelling and short term memory. However these advantages came fully to-the-fore at the system level and are not particularly useful when writing small, simple code fragments. Unfortunately these type of code fragments form the bedrock of how computer programming is taught in secondary schools today. I propose that by augmenting computer code with block and flow diagrams it may tap into dyslexic children's innate capacity for visualisation.

Introduction

Why Dyslexic brains are different

Genetics

Brain structure

Coping strategies

Advantages

How visualisation helps

Logo, Smalltalk and Scratch

Planning

Prior learning:

Lesson One: Sequence

Lesson Two: Selection

Lesson Three: Iteration

Lesson Four: Strings

Teaching

Evaluation

Conclusion

Bibliography

Stein, J., 2018. Why Dyslexics Make Good Coders. *ITNOW*, *60*(3).

Appendix