Teaching Functional Programming should start earlier!

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Background

- Worked in secondary education for 10 years
- Asked to develop an IT scheme of work for year 7

Codename Cobra

- Spy based course to introduce students to IT
- Ran from 2005 to 2012 successfully
- Course was produced on Moodle
- Released and downloaded 1000's of times.

Why did it work?

- Simple to follow tasks

- Story based

- Students felt it was not work

This led to a:

- High percentage of self motivated learning

Question?

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Hopefully! I am going to find out.

Why?

- First experience in the UK for many is in University
- In the UK only one exam board provides the chance
  - And this is optional!
- Might stop some students from hating programming

The Plan

- Teach Haskell in small manageable tasks
    - How to Solve It
- Heavy story base, Spy theme returns.
    - Theory :   Story led something they want to read
    - Practical : Task and story led varied adventures

What next?

- Finish writing the course
- Roll it out for one term
- Record the outcome, collect data, get feedback
- Make changes and release into the wild

Conclusion

▫ Functional Programming should be taught in secondary schools not just imperative!

A scheme of work is in progress with two goals:

▫ Teach Haskell in a fun story led way

▫ Give schools the chance to offer a FP course even if they are not FP programmers

Thank you!

References

- How to Solve It: A New Aspect of Mathematical Method. G. Polya. Princeton University Press; 2nd edition (26 Oct. 2014).
- Where do I begin? A problem solving approach in teaching functional programming. Simon Thompson. https://core.ac.uk/download/pdf/63318.pdf
- Computational Fairy Tales. Jeremy Kubica. CreateSpace Independent Publishing Platform (26 Jun. 2012).
- ***Choose Your Own Adventure*** is a series of children's gamebooks where each story is written from a second-person point of view, with the reader assuming the role of the protagonist and making choices that determine the main character's actions and the plot's outcome. (Wikipedia 2017)

  The book I showed in this talk was:
  - Mountain Survival. Edward Packard. Bantam USA; 2nd Printing edition (12 Jun. 1996)