

## Visualising the Code An investigation of student engagement with programming in TU100

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#### Aim of the project



 To investigate the impact of using a graphical programming environment on student engagement with programming.





#### Methodology



- Identification of the Sense programming questions in each TMA and in the EMA.
- Identification and collection of data related to the numbers or students who completed these questions and their overall performance.
- Analysis of textual comments in a selection of SEaM surveys of TU100 relating to students' experience of programming.



#### **Comparison of OES Scores**



The Open University



# Are students passing without passing Sense?



#### Overall score for students that scored <40% on programming



The Open University



## Small percentage passed module without passing Sense

Comparison between students who passed all elements with those who passed but failed Sense (across six presentations)



Passed all elementsPassed but failed Sense



### Analysis of SEaM comments



325 students made comments on one or more of the 3 questions:

- What aspects of teaching materials, learning activities or assessment did you find particularly helpful to your learning?
- We would welcome any further suggestions or comments to consider for future editions of the module.
- Do you have any other comments to add about your study experience on this module?



## Sense & Programming Comments







#### Positive comments examples



SENSE was very good too as it enabled me to focus on logic and programming structure, rather than language

The Sense board, tasks and associated manual were excellent and this was certainly the high point of the course for me

Furthermore, it introduced me to programming in a way that was very easy to understand and to follow with lots of activities and programming examples and which led me to a new hobby.

#### Negative comments examples



I felt the assignment programming tasks were very basic

The Programming guide is awful, I have worked thought it more than once and I still cant grasp most of it. I have had to look elsewhere to help develop these skills

The Sense programming environment is obviously designed for children, and I cant understand why the OU couldn't have based the course on a real-world app programming language that is instantly applicable in the real-world... Android for example or C++

## Summary & future work



#### Summary

- More students have engaged with the programming element than on previous modules.
- There is a strong correlation between the scores that students achieved in the programming and non-programming elements of the EMA.
- There is little or no difference in the performance of students in the programming elements and the non-programming elements.
- Work has informed thinking around new curriculum
- Provides a reference point for future level 1 studies

#### • Future Work

- Similar study for TM111 after first presentation
- Followed by evaluation of student performance in text-based programming on TM112

