Poster paper

A Leap of Faith: Improving assessment validity in introductory programming

Mike Lopez

Manukau Institute of Technology
mike.lopez@manukau.ac.nz

The study by McCracken *et al* (2001) alerted many educators to the issues involved in teaching introductory programming. Their work suggests that the majority of students who pass an introductory programming course in some of the best institutes in the world cannot achieve the basic learning outcome of writing a program.

Jenkins (2001, page 65) comments *"It was with genuine surprise that I discovered at the end of the module that many of my students simply could not write even the simplest programs"*

Our assessment is not valid if we pass students that cannot program. We need valid assessment but, to achieve an acceptable pass rate, we must also improve the educative value of the course. To trust that we can improve both validity and learning requires a "leap of faith".

This paper describes changes made by Manukau Institute of Technology (MIT) to improve the validity and educative value of the introductory programming course in the Bachelor of Information Systems (BIS) programme.

We changed our assessment regime to a portfolio centred on the ability to write a program from a specification. The learner is responsible for creating the portfolio which has 17 items that document both mastery of the learning outcomes and the learning process that has occurred.

The lecturer role is to guide the learner in the production of the portfolio and to make an assessment judgement at the end of the course, based on the evidence in the portfolio.

A major goal of this approach is to integrate educative feedback into the process while avoiding specific detailed feedback that could endanger deeper learning.

The production of the portfolio occurred over a five week period to ensure that impaired performance on a single occasion could not adversely affect the outcome. Regular self-assessment was carried out in the earlier part of the course to balance workload and keep learning focused.

The assessment regime included an oral interview with each student. Although originally intended as a measure to control authenticity, this turned out to be one of the most useful parts of the regime. As a side effect, all recommended grades were agreed with the student at this time.

The course evaluation for this semester showed a satisfaction rating of 99% for the assessment regime. We managed to sustain the pass rate while (we believe) improving validity.

References

Jenkins, A., (2001), "Teaching programming - A journey from teacher to motivator", Proceedings of the 2nd Annual Conference of the LTSN Centre for Information and Computer Sciences, pp. 65-71. 2001

McCracken, W. M., Almstrum, V., Diaz, D., Guzdial, M., Hagan, D., Kolikant, Y. B.-D., Laxer, C., Thomas, L., Utting, I., Wilusz, T., (2001), "A multi-national, multi-institutional study of assessment of programming skills of first-year cs students.", SIGCSE Bulletin 33 (4), 125-180.