

# REINTRODUCING PROGRAMMING TO THE SCHOOL ENVIRONMENT

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## Extended Abstract

This extended abstract summarises a regional widening access, University initiative to reintroduce computer programming into secondary level education by providing an eLearning course.

It could be argued that UK Government generated School league tables during the late 1990s and 2000s led Schools to move away from perceived "more difficult" subjects to ensure high exam performance. This resulted in many schools moving away from Computer Science at both GCSE (16 year olds) and GCE (18 year olds) to ICT based subjects. This resulted in a generation of school children not being exposed to computer programming until University.

In line with much of the sector, we found this dramatically affected our retention rates as students who had studied ICT at school (MS Word, Powerpoint, Excel, Access and so forth) came onto a Computer Science degree but then struggled with programming and indeed in some cases felt they had made the wrong course choice. This resulted in our department having the worst retention rates in the University. In addition to this, over time it limited what we could realistically do in year one at University. With substantial effort being put into first year support we eventually came to the conclusion that we needed to work with the schools directly to counter the "ICT effect".

The year we have now reached 300+ school pupils through the support of many dedicated school teachers, often offering the course in out of school hours clubs. Sample feedback from two stakeholders follows:

*"I have recently been awarded a scholarship from Liberty-IT and I can say confidently that I wouldn't be where I am now if it wasn't for the courses that were available to me when I was at school and the encouragement from my teachers. My first real taste of programming was when I was in lower sixth and I chose the enrichment course 'Introduction to Programming' from the University of Ulster. This course taught me the fundamentals of programming and really lifted the fog in terms of understanding code and even writing a bit of code myself. I found this course so enjoyable that I started to research different languages on my own and programming in my spare time. By the time I was in upper sixth I knew for certain that I wanted to go into the software development field of work and to do this I chose to study Computer Science at university. When a scholarship opportunity was mentioned at university I jumped at the chance and applied the knowledge I had learnt over the last few years from courses at school and my own research to try to impress Liberty IT interviewers. I feel that programming should be taught to every student because of its benefits in terms of problem solving, mathematical understanding and general creativity. Programming is a real passion of mine now and I can't thank the school and teachers enough."*

Adam, former participating School pupil, current Computer Science Undergraduate.

*"An Ulster course that has been invaluable to our young people is the Introduction to Programming using Javascript. For a number of years now this has been used as part of our Sixth Form Enrichment course at Wallace, with students interested in finding out about Computer Science completing the course. It is notable that a number of these students have gone on to Computer Science degree courses and similar higher education options. The course has allowed me to identify potential in students and provides confidence for students to know that they are interested and able to study computer science further. In particular Tanya features on the school website for her achievement in being offered a place on the Kainos Earn as You Learn scheme. Another student, who did not perform so well in his 'A' Level subject options displayed a natural ability in programming and developed a passion for it during the course, coming top of the class in the assessment. He is continuing his programming career in a local FE College. I am confident that both of these students and more that*

*have benefited from this course over the past 5 years will be useful employees in the workplace in Northern Ireland, helping to fill the skills shortage in the local economy.”*

Ruth Foster, Head of Computing, Wallace High.

As schools are busy environments, we could never hope to achieve total school engagement. Therefore, going forward we are extending the programme by offering to all school students who apply for entry to selected University degrees while they still have the option to choose their career path and make that decision if programming is really for them.

Keywords: Widening Access, Computing programming, CPD (Continuing Professional Development).