SFI Science Foundation Ireland

Transforming ICT Education in Ireland
Lero – The Irish Software Research Centre

Society

CHALLENGE

The skills shortage that exists worldwide in the software sector is also a problematic issue in Ireland. About 40% of ICT job vacancies are currently filled by inward immigration. One factor that may inhibit efforts to increase the supply of computing graduates from the Irish 3rd level institutions is that the Irish school system does not include an official computing subject. Irish students find it difficult to make informed choices with regard to computer science courses having had no previous experience in this area. As a result there is a very high dropout rate from computing courses in Ireland at third level; this can be as high as 30% in some cases, compared with average dropout rates of 15% for non-computing courses.

RESPONSE

Lero has developed a number of initiatives at primary, second and third level to transform ICT education. At primary and second level Lero has developed teaching materials that support schools to deliver Scratch, a programming language that teaches software development through the programming of interactive stories, games, and animations. The teaching materials, available on-line at scratch.ie, have been downloaded by over 9,000 users and are freely distributed by the Irish Computer Society. In 2014, the Lero-sponsored Scratch competition for schools involved 960 projects from 95 schools/Dojos. At second level, Lero was commissioned by the National Council for Curriculum and Assessment (NCCA) to develop a 100-hour Junior Cycle short course titled "Coding".

ENGAGEMENT

Lero is actively engaging with students and teachers. Within the Scratch programme over 2,000 teachers have been trained through the Professional Development Service for Teachers (PDST), engaging with over 40,000 students. Teachers in 60% of Irish primary schools and 52% of post primary schools have participated in Scratch training, with over 1,500 students participating in the 2014 Scratch competition. Outside school, Lero is actively involved in the Coder Dojo movement, providing training to Coder Dojo mentors and Scratch resources for use by the Dojos. A number of Lero researchers are Coder Dojo mentors.

IMPACT

Lero is a leader in STEM initiatives nationally and believes that all students should experience hands-on computing as part of their education, starting at primary level. This will enable them to gain an appreciation for the domain of computing and software engineering and so to make informed choices about their future careers. It is expected that Lero's interventions will attract better prepared students to ICT courses. Students using Scratch will gain a better understanding of what a career in computing entails and can make more informed subject and CAO choices. It is anticipated that this will result in a decrease in the drop-out rate from computing courses in Ireland and provide a much needed skilled workforce for the ICT sector.

NEXT STEPS

Lero will monitor the impact of these interventions and continue to support teachers and schools that are interested in bringing computing into their classrooms.

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