

# Creative solutions needed to attract more students to computer courses

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The dramatic fall in the number of Leaving Cert students expressing a first preference for computer science courses in this year's CAO process is a disappointment. After all, a key part of the current policy consensus is that Ireland should develop as a "knowledge-based economy", with Information and Communications Technology (ICT) widely seen as a vital component.

Much policy effort and public funds have been devoted to the human capital aspect of this effort, not least in providing extra third level places in related disciplines.

This year's cohort of secondary students do not seem to be at all impressed by this ICT-driven strategy, against a background of the worldwide downturn in the industry to which they presumably are being directed for employment prospects.

So how do we respond? Blame the students for short-termism?

Blame the media for reporting the technology crash?

Blame Roy Keane?

I would argue that three responses are warranted; calmer reflection on the interpretation of these raw numbers, a thoughtful approach to the underlying rationale for the policy effort which is now under pressure, and innovation in the instruments we select to deliver an innovative society.

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First, one might question whether this fall in interest in computer courses is partly a reflection of better informed decisions on the part of students as to their respective aptitudes and capacity to complete courses. We may have to wait and see what the pattern of acceptance of CAO offers is, to give an initial judgment on what the quality of student intake will be this year, and track the completion rate for this cohort, which is after all the desired output here.

One might also point more optimistically to the increase in first preferences expressed for science courses, and to the fact that some of the categories used to classify courses mask the ICT content in non-computer science courses. Business students will almost without exception encounter substantial exposure to ICT courses in third level, and some specialist degrees within this category weight the ICT component heavily.

In some cases, students' choice of a specialism will not emerge until second or third year, and this should be factored into expectations of the future supply of ICT-literate graduates.

Indeed, beyond the business courses, arts students in NUI Galway have the option of taking information technology as a full subject to degree level. Irrespective of discipline, students (to an admittedly varying extent) find that ICT is a part of the process of course delivery and learning.

On this last point, there is a difference between a graduate who uses information technology as a tool, and a graduate capable of developing the technology itself, but the contrast is not necessarily a negative one. From an economic strategy point of view, the desire to see more computer science graduates is mainly about serving the ICT producing sector of the economy, and the current CAO numbers obviously cause concern on that front.

However, a central argument of those who see ICT as a transformative technology is precisely that it impacts much more widely, i.e. on ICT using sectors, raising productivity throughout the economy, and indeed enabling broader and progressive social changes. For the third-level sector the short-term response might include renewed efforts to emphasise this potentially pervasive role of ICT throughout many disciplines, building on the core computer science capacity which exists.

The long-term response here is to consider more carefully the system we have in place which allocates so much of the talent in our society.

We, of course, have had major reviews of the points system and specialist task forces on future skills needs and in particular, on ICT and science requirements. However, these operate within an environment which is broadly unquestioned - namely, a standardised terminal examination as the common entry route to a third-level system, increasingly directed towards public policy goals by fairly centralised means.

The attractions of such a system in a small country have been well rehearsed in terms of its perceived objectivity, coherence and responsiveness to policy changes, but is it an appropriate model for an innovative and knowledge-based society?

Perhaps there is a real tension between this system and the rhetoric of innovation which we should examine. For example, does anyone seriously believe the Leaving Cert is consistent with a notion of learning as a self-directed, creative, interactive process?

Have students learnt to learn after this experience, or merely learnt to imitate learning?

How can third-level institutions challenge the pedagogical deficiencies of the Leaving Cert when it is the entry ticket to third level?

And how could such a system possibly produce innovators at the end, in any domain, irrespective of their credentials as technically competent?

We may be unduly constraining student choices at the ages between 16 and 19 by this entry mechanism, which has given them little opportunity to discover their aptitudes for subjects they have not been exposed to except as an instrumental means to a narrow end.

The argument here is not that, for example, all third-level institutions dispense with the Leaving Cert, but that any particular institution might have that option, and to innovate in terms of entry mechanisms and progressions from entry onto an award for this age group, and not just for non-traditional students. Such institutional innovation could extend to financial autonomy to set differentiated fees, and capture the income within both internal institutional cross-subsidy arrangements and the public subsidy system.

The innovative capacity of the third-level sector has been demonstrated within the current system, but might it be that the system itself needs to unleash that capacity and allow more institutional innovation in the basic

rules of the game?

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