Ireland ACM* SIGCSE† Chapter launch
UCD School of Computer Science
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† Special Interest Group on Computer Science Education
Slides at brettbecker.com/talks-panels-etc/
@brettabecker
Mission

• provide a unifying forum to foster and advance Computing Education in Ireland
• promote dissemination of best practices in Computing Education research & practice
• positively influence equality, diversity, inclusion & accessibility in computing

This mission transcends all stakeholders in Computing Education in Ireland including formal and informal educators and students as well as government, industry, volunteer and grass-roots stakeholders.

• Join if you aren’t a member! SIGCSEire.acm.org. Free! Spread the word!
• Join SIGCSE too! Best $25 (€22.61) you’ll ever spend. sigcse.org
Who are we?

• 149 members
  • **Every level of education**: 3rd level (58%) 2nd level (18%) Primary level (7%)
  • Undergraduate & Postgraduate Students (6%)
  • Industry (<5%)
  • Voluntary (Coder Dojo, code clubs, etc.) (<5%)
  • Government (<5%)
  • PLC / VTOS (<5%)

• Officers
  • Brett Becker (UCD): Chair – [www.brettbecker.com](http://www.brettbecker.com)
  • Keith Quille (TU Dublin): Co-chair – [www.keithquille.com](http://www.keithquille.com)
  • Catherine Mooney (UCD): Registrar / Treasurer – [lisda.ucd.ie](http://lisda.ucd.ie)
Who are we?

• Membership is ~ 44% female, ~ 55% male

• Members from:
  • 8/8 Universities in Ireland
  • 9/11 Institutes of Technology
  • 1/3 Private Colleges (HECA with Computing Programmes)

• Members based in Northern Ireland are Welcome
  • Actually, if you have a reasonable connection to Ireland, you can join from any country
What do we do?

• A Community of Practice - Work with other existing groups
• Looking inward (domestic) and outward (international)
• Work on behalf of SIGCSE in Ireland
• Listserv (members only)
  • Please use it! Ask questions! Share resources!
• ~3 meetings per year?
  • 1 large, 2 smaller? (including 1 business meeting)
  • Geographically distributed
  • Any member can propose hosting an event, under almost any theme/model/etc.
    • As long as it’s Computing Education including Equality/Diversity/Inclusion
• More – it’s your chapter!

@SIGCSEire
Thank You!

• Amber Settle (DePaul U) and the SIGCSE Board(s)
• UK SIGCSE Chapter (Steven Bradley, Sally Fincher, Quentin Cutts)
• UCD School of Computer Science & College of Science: Chris Bleakley, Pádraig Cunningham, Joe Carthy, Lorraine McHugh & Caitriona Power
• Barry Feeney (TU Dublin)
• Paul Dickson (Ithaca College)
• Keith Quille (TU Dublin), Catherine Mooney (UCD) & the original supporters: Rosemary Monahan & Kevin Casey & Aidan Mooney & Keith Nolan (MU), Karen Nolan & Roisin Faherty (TU Dublin), Thomas Fitzpatrick (UCD)
• All 149 members who have joined in the last 8 weeks
• EVERYONE WHO CAME HERE TODAY!
• Student helpers!
Computing Education in Ireland and elsewhere...

The Common Ground
Computing is great and is doing better than ever!

- More computing students now than ever
- More diversity than ever? (but improvement is still needed)
- More jobs than ever
- Computing is now truly affecting every industry, every discipline.
  - It’s easy to forget that 20 or 30 years ago this was not so true.
- Computing is now facing new challenges. Challenges of a discipline that is maturing.
  - Computing for social good
  - Diversity
  - Ethics
  - Law & Legality
  - Energy and Green issues
  - Security
  - Digital Natives
  - ...
But...

We are far from mastering computing, how to teach it, and all of its implications...
Example: first language

• We aren’t even close to agreement on what language is best for any given group of students

• The languages used, and the reasons for using them, vary greatly - even by country [1]

• Long-running surveys in Australasia, repeated in UK in 2017 (see [2])

• Repeated in Ireland in 2018 [2]
  • Covers all but one university and one IoT.

Myths & misconceptions

• Computing is new.
• We. Are. Not. Yet. Teaching. It. Best. - We just can’t be.
• As computing educators, We all need to constantly challenge our own beliefs and ‘truths’ and knowledge.
  • Teaching computing is a responsibility. (Teaching anything is a responsibility).
• Do we harbour M&Ms about the M&Ms we worry about?
• Do I propagate M&Ms unknowingly?
Computing ≠ Programming
Programming ≠ Hard

• Programming is important - and problematic – but it’s not everything

• Sime et al. (1977) “Programming could be made easier” [3]

• 40 years later, Andrew Luxton-Reilly “Programming is Easy” [4]
  • He was *trying* to convince the masses – Sime et al.’s message hadn’t yet caught on

• Me (today): Computing *should* be made easier, & more accessible, to anyone

• Why does the “programming is hard” mantra persist? Do Physics people walk around saying “calculus is hard”?
  • Not where I studied Physics. But even if they do, what good is that?


Computing ≠ Mathematics

• At best: computing ability ~ mathematics ability (for some learners)
  • *There is very little evidence for mathematics = computing & mathematics = programming*
  • This could not only hurt the discipline, but discourage diversity [5]

• What about
  • Natural language ability and computing?
  • Creativity and computing?
  • Spatial reasoning and computing?
  • X and computing?
    • We simply have not yet explored many values of X
    • So how do we so confidently speak about mathematics?

Computing is a trading ground

- Computing in other disciplines
  - STEM, Humanities, ...

- Other disciplines and areas moving ‘into’ computing
  - Ethics, Forensics, Education, ...

- Areas ‘emerging’ from computing
  - Cyber Security, Quantum Computing, ...

- Nebulous concepts with seemingly infinite definitions, few of which are agreed, nor provided often enough when used (even if used a lot)
  - Computational Thinking, Problem Solving, Active Learning ...
  - We don’t even agree on what “Computer Science” means [6]

CS is for everyone

• What does this really mean?
  • I fear that messages like this often go in one ear and out the other.
  • May be counter-productive when not used with informed intention? There are many people and groups who are delivering this message effectively – but again, there is a responsibility.

• What “Computing is for everyone” means to me:
  • **Computing is for anyone**
    • ...who wants to do it or wants to use it – no less so – and no more so – than for any other discipline.
  • Computing is just another discipline in a lot of ways. Let’s recognise that.
    • Of course there are unique aspects to computing as a discipline
    • but every discipline has unique aspects
    • That doesn’t make computing more different – it makes it just as unique as every other discipline

• SIGCSEire is a venue to explore ideas like this (including disagreeing with views like this 😊)
Computing Education in Ireland
Today
The good, the bad and the quirky
People, participation, environment

- Lots of interest from parents, volunteers, young people
  - Coder Dojo started in Ireland!
- Ireland has similar diversity issues as other countries (particularly English-speaking Western countries)
  - Very high numbers of male students
  - Low participation from certain socio-economic groups
  - More...
- Fantastic computing job market (**Spectacular** when you consider a population of ~4.8 million).
  - Facebook, Google, Microsoft, Dell/EMC, Intel, IBM, Amazon have BIG operations here (many EMEA headquarters, many of these are the largest presence outside US)
  - Almost every tech player you can think of has a non-trivial presence in Ireland
Computing Education Research in Ireland

• Of the 57 countries that attended the SIGCSE Technical Symposium 2010-2018, Ireland ranked 20th in attendees

• Of the 47 countries who have had authors at the Symposium 2010-2018, Ireland ranked 14th in number of papers

• 9th in ICER papers (2005-15) - Per capita, 2nd. *This is probably higher now...*

• A handful of active research groups

• Two handfuls of PhD students (that’s a lot – even on a global scale)

• Ireland is doing well, particularly given a small population, like:
  • Finland...
  • New Zealand...
Unique Opportunities

• In the last 3 years Keith Quille and his team at TU Dublin (with Karen Nolan and Roisin Faherty) have run micro:bit “camps” for:
  • ~7500 students at ~250 schools
  • They also ran CPD sessions for ~1000 teachers.

• About 40 hours per week! Every week!

• CSinc.ie
Unique Opportunities

• INGENIC, the Irish Network for Gender Equality in Computing
  • 2017 Catherine Mooney (UCD) and Susan McKeever (TU Dublin)
  • “Promoting gender balance through 3rd level collaboration”
  • Aim is at least one CS faculty member at each HEI in Ireland (very close to being realised)
  • Share information – Athena Swan, statistics, experience, ...
Leaving Certificate Computer Science

• Nationwide Curriculum
  • Not possible in many places, like the U.S.
• “Phase 1”
  • 40 hand-picked schools (out of ~120 applications)
  • Started Sept 2018, sitting LCCS June 2020
• Open to all schools September 2020
Leaving Certificate Computer Science

- **Successes:**
  - It exists
  - Good feedback from teachers & students

- **Problems:**
  - Teacher supply
  - Lack of communication
  - Transition to third level (university/college level)?
  - Gender & Diversity?
Leaving Certificate Computer Science

• Sample papers, sample coursework & more tinyurl.com/rz4pjst

• LERO interim report on LCCS Teachers’ CPD Programme tinyurl.com/qsj9j5c

• A disappointingly brief mention in the ICT Skills Action Plan 2022 tinyurl.com/wfggofx

• A Framework for support of Computer Science at Leaving Certificate level has been developed by the DES (Dept of Ed & Skills) in collaboration with CESI* (cesi.ie)
  • EoI for participation in the forum set up to implement the framework will be issued on Dec 16.

*CESI is the Official Teacher Professional Network for Computer Science
Evolving landscape

• Several universities offering in-service and pre-service programmes for teachers
  • I don’t think anyone has a complete (definitive) list – Tom Farrell (careersnews.ie) is working on one.
  • This sounds like a great thread for the SIGCSEire mailing list!
• How is the Leaving Certificate Computer Science going to go?
• What will the transition from second-level to third-level computing be like in 5 years? 10 years?
• Will we be teaching programming in STEM? Humanities?
Wrapping up

• Ireland ACM SIGCSE Chapter
  • a truly national, truly inclusive network, welcoming any and all stakeholders in Computing Education in Ireland
    • All levels, all sectors – even all disciplines – STEM? Humanities?

• It’s the members’ chapter. Help us shape it!