

Towards a Framework for a Buddy System

Introduction

The purpose of this document is to set out a means by which stakeholders from the public and private sectors can work together to provide a buddy system that supports the growth and development of computer science education in Ireland – particularly at post-primary level and in the context of the recent introductions to the curriculum of the short course in coding at Junior Cycle and computer science at senior cycle.

Background / Context

In September 2018 Leaving Certificate Computer Science (LCCS) was introduced, on a phased basis, to 40 post-primary schools in Ireland. A further 52 schools introduced the subject for the first time in September 2020. Plans are in place to seek expressions of interest from schools to introduce LCCS in September 2021 and it is envisaged that this call out to seek expressions of interest from schools to introduce LCCS will continue on an annual basis for the foreseeable future.

The subject specification itself was developed by the National Council for Curriculum and Assessment (NCCA) and was officially launched in February 2018 by the then Minister for Education and Skills, Richard Bruton.

The overarching aim of LCCS is to develop and foster the learner's creativity and problem solving along with their ability to work both independently and collaboratively. Students of the subject are provided with opportunities to apply the fundamental practices and concepts of computer science and develop an appreciation of the diverse role of computing technology in society and the environment in which they live. Studying computer science will nurture students' interests and passions and empower them to engage confidently and actively with the world. In this context LCCS should be viewed as a general subject and not necessarily a subject to act as a feeder to CS programmes at further education and training or higher education institutions. Nor should it be seen as a subject whose purpose is to address the technology skills gap any more than any other subject on the senior cycle curriculum.



In order to support the national rollout of this subject to post-primary schools the department of education developed a framework document for LCCS¹ Key stakeholders involved in the development of this document included representatives from the Irish Business and Employers Confederation (Ibec), Irish Universities Association (IUA), The Computers in Education Society of Ireland (CESI) and the Professional Development Service for Teachers (PDST).

¹ <https://assets.gov.ie/96404/12e74bb6-d389-4413-9eb1-e98a0593b810.pdf>

The LCCS Support Framework will both harness and build upon a range of measures set out in the STEM Education Policy Statement 2017 – 2026², measures which aim to deliver quality STEM education in Ireland. The framework outlines a vision for LCCS and a set of initiatives to support the rollout of the subject nationally was formally announced on the 16th November 2020 by the Minister for Education, Norma Foley.³

The framework document characterises the implementation of LCCS as a project in a very nascent state and one which will require the full support, cooperation and collaboration of all stakeholders in order to ensure that the subject can be successfully bedded into the Irish senior cycle curriculum and ultimately flourish. There are currently approximately 730 post-primary schools in the Republic of Ireland and so the opportunities and challenges that lie ahead for computer science across all levels of education in Ireland are equally significant. All stakeholders have a role to play but joined up thinking on how both existing and prospective CS schools, teachers (both pre-service and in-service), and students can be supported is key.

Teacher Supports

In order to support schools and teachers (many of whom are ‘out-of-field’) with the introduction of LCCS a comprehensive continuing professional development programme was put in place. Primary responsibility for the design and implementation of this programme rests with the Professional Development Service for Teachers (PDST).

PDST’s CPD programme (see illustration) is a two-year multi-model programme encompassing a mix of seminars, skills workshops (Python, HTML, CSS, JavaScript), elective skills (e.g. micro:bit), webinars and relevant MOOCs shared with the teachers. The programme was designed to be delivered face-to-face but recently this has moved to an online space.

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<https://www.education.ie/en/The-Education-System/STEM-Education-Policy/stem-education-policy-statement-2017-2026-.pdf>

³ <https://www.education.ie/en/Press-Events/Press-Releases/2020-press-releases/PR20-11-16.html>



Overview of the inter-agency CPD programme for LCCS

The CPD programme includes a vibrant (closed/peer-to-peer/horizontal learning) communities of practice which are based on the Slack platform and bi-annual regional meetings (aka clusters). There are currently 16 cluster groups established across the country. The introduction of the LCCS support framework has bolstered the relationship between PDST and CESI and has resulted in actively collaborating on the delivery of skills workshops and the scheduling and facilitation of CoP meetings.

Teachers are also supported through a mentoring system in which individual phase 1 teachers provide direct peer-to-peer mentoring on an as-needed to phase 2 teachers. It is envisaged that this type of teacher mentoring support will continue on an annual rolling basis as schools introduce LCCS for the first time in the future.

Further supports are available to teachers through compsci.ie. This is a Scoilnet portal site whose content is created by teachers for teachers. The development of the site is a result of collaboration between Scoilnet, The Department of Education (Inspectorate) and PDST Computer Science. The purpose of the site is to facilitate sharing of resources for computing, computational thinking and computer science in schools in Ireland – eventually across all sectors – Primary / JCT / LC.

Higher education institutes provide a wide variety of supports to pre-service and in-service teachers through outreach programmes as well as the growing number of computer science PME programmes and part-time postgraduate courses they offer.

Teachers and schools are also widely supported by industry. Although the initial CPD programme for phase 1 teachers also included an ‘industry visit’ to Microsoft, there are many other examples of local and informal collaborations between companies and schools/teachers. These models of good practice across are often undocumented and not widely acknowledged. A buddy system will complement and supplement what is already happening and pivot organisations that are already involved to target schools that are not availing of potential support. Many companies already have offerings/programmes in place



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potentially dovetail readily into this buddy system. This is an area of huge potential and one of the aims of this buddy system framework is to initiate a mechanism by which this potential could be harnessed on a structured and sustained basis.

Aims and principles

As mentioned earlier, the LCCS framework document identifies a set of initiatives to support the rollout of LCCS nationally. These initiatives are captured as a series of actions, two of which are listed below.

- 2.1 Establish a 'CS Buddy System' involving personnel (professional associates) in further education (FE), third level, business and industry to provide online/face-to-face support.
- 2.1.1 Create a panel of Buddies.

While it is important that schools and teachers that are already involved in the delivery of LCCS continue to be supported (and that there is scope for additional supports via a buddy system) it is worth noting that **the greatest gains from a buddy system might be achieved by supporting schools that have not yet introduced computer science to build up the necessary capacity and culture to do so in the future.**

The primary aim of the buddy system would therefore be to support schools that have not yet introduced LCCS to build the necessary capacity and culture to do so. Ideally a mechanism should be put in place to ensure an inclusive approach i.e. an even distribution of schools across gender, DEIS/non-DEIS, geography, sector etc. A secondary aim would be to publicly acknowledge and build upon existing supports that are already being provided to teachers and schools by industry/companies and education providers. These aims are underpinned by the following principles:

1. The buddy should be sensitive to teacher/school context particularly in relation to scheduling additional supports for teachers who are, at that time, participating in the two year programme of professional development.
2. The buddy should be aware of the 'spirit of the specification' and in particular its potential to promote both teacher agency and key skills in students as per NCCA's senior cycle key skills framework⁴.
3. From an ethical stance all initiatives arising from the buddy system are required to have an educational focus and commercial presentations and endorsements are strongly discouraged.

⁴ https://ncca.ie/media/3380/ks_framework.pdf



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Actions to enable the CS Buddy System



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- Initial contact to explain the context and proposed buddy system to prospective organisations that can offer support. These organisations might be representative groups, targeted personnel e.g. education/outreach officers in individual companies (SMEs/multinationals – not necessarily blue chip or technology companies) and educational institutions (further and higher/IUA, THEA, SOLAS).
- The initial step could be followed by an ongoing information campaign which would target schools and potential buddies alike. The rollout details including promotional resources to support the above campaign will need to be resourced and developed.
- A panel of buddies will be established. The PR campaign will lead to a registration step in which prospective buddies would be enabled to volunteer their interest and intention to help. As part of this process they could indicate their particular area of expertise and provide specific examples of how they might be able to support the national rollout of LCCS and CSE in general. The implementation of this panel may be as simple as a Google Form but details such as, design, ownership/hosting, ongoing maintenance etc. would need to be planned for and resourced.
- All registered buddies will be supported fully to understand the context and principles. In order to minimise the disruption to their everyday work this could be delivered to buddies via an online platform. As before, there are planning and resource considerations relating to the design, development and ongoing delivery of such a programme.
- Once the panel has been established it can be promoted on an ongoing basis to all post-primary schools including (especially) those that are interested in building up the capacity to introduce computer science.

The Buddy System in action – example initiatives

One established the buddy system panel could be used in multiple ways. Some example initiatives are outlined below but it is important to point out that this list is neither conclusive nor exhaustive. Initiatives will be added and removed on an ongoing basis and in fact consideration should be given to resource the ongoing management of the buddy system as well as to track the effectiveness of the individual initiatives.

Buddy support by Schools/Teachers

Firstly, buddy support could be requested directly by schools/teachers. For example, schools/teachers would have access to the panel and could reach out directly to the organisation who they feel would best meet their needs. Alternatively, a more bespoke model could be explored whereby businesses and industry would be matched with teachers and schools who are willing to build up the necessary capacity and culture to introduce computer science but are unsure about how best to do so.

Business and Industry Post Primary Students

Business and Industry can contribute to enhancing opportunities for students to access high-quality information and experience in relation to careers in Computer Science. These will take the form of school visits by relevant personnel, input to careers' evenings, participation/organisation/sponsorship of co-curricular and extracurricular events (e.g. showcases and competitions) and the provision of internships to interested students.

Business and Industry - New Computer Science Schools

The buddy system could be particularly useful to schools who are not currently offering computer science or coding as a subject and who wish to build up the necessary culture and capacity to do so. In such a scenario an arrangement could be made whereby a buddy/organisation would make their expertise available to a school or group of schools in close proximity to one another for an agreed period of time. For example, this could be a weekly/monthly visit to the school(s) for a term, or longer, and spread over a number of years. The main aim of this work (which could also be delivered remotely) would be for the buddy to build teacher's attitudes, skills and dispositions towards computer science as a discipline so that ultimately the teachers themselves are empowered to introduce computer science to their own schools. This could be done in the form of different companies providing master classes on different topics over a period of time.

As mentioned earlier many companies already have some offerings/programmes in place. There is potential to morph and dovetail these with this initiative as well as to pivot existing practice to target schools where a CSE culture might not yet exist.

Business and Industry - Existing Computer Science Schools

Regarding schools that are already up and running with computer science there is the potential to dovetail buddy organisations into each of the existing 16 PDST-CESI CoP cluster groups. Initially registered buddy organisations would be invited as guests to these teacher-led events and over time, they could play a more active role. This initiative could lead to industry visits from teacher groups. These could be organised either at a local or national level. As this initiative would work best if supported to take place during school/work hours, consideration could be given to including such site visits into the CPD programme. Locations could be rotated to suit teachers/schools in different parts of the country.

Buddy Systems and Higher Education and Further Education and Training (FET)

This initiative will form part of a transformative CPD model that may be appropriate for teacher engagement with Higher/FET Institutes in Research. In this model a third-level researcher will become a teacher mentor for a summer term or for an academic year. The research focus, or the focus of the practitioner inquiry, could resonate with a topic that is prompted by a teacher's interest or a concern emerging during the rollout of computer science. A concrete example of this initiative would be self-study action research.

A buddy champion in each HEI is proposed - ideally one representative from each university and IoT - these would be registered on the aforementioned panel and could act as the initial contact point to respond to requests from teachers/schools for support (face-to-face or

online) such as specific training from a subject matter expert/guest speaker etc. As part of the ongoing (informal) monitoring process buddy champions could meet 2-3 times per annum to discuss levels of engagement and effectiveness.

Other considerations

1. It may be worth exploring potential synergies between some of the initiatives outlined in the previous section and the department's Digital Strategy for Schools and Digital Learning Framework document.
2. The table below lists other initiatives from the support framework action plan which could potentially overlap or be addressed by the buddy system initiative discussed in this document.

Initiative Number	Action
2.1	Establish a FE/ third-level mentor system.
2.2.1	Create a panel of FE / third-level mentors.
2.3	Sustain and expand the existing mentoring system to enable Phase 1 teachers to support and guide an identified colleague in a national rollout school.
2.3.1	Develop resources to support the mentors
4.3	Sustained Support – Communities of Practice (CoPs – both CESI-CS and PDST LCCS). Continue the development of CoPs by building on work already in train in the system resulting in the: <ul style="list-style-type: none"> • Submission of an agreed plan for activities in the school year 2020/2021
4.3.1	Extend this partnership to FE, HEIs, Business and Industry and Educational Centres
5.2	Develop a plan for TY placement opportunities in the computer science businesses and industry.
5.2	Develop partnership with third-party providers to allow schools to access existing relevant resources and avail of school visits [establish links with local FE colleges that do computer science programmes and support computing apprenticeships
6	Engagement with IGC
	Internships