Professional Development Recommendations

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INTRODUCTION

This document contains the recommendations for a research project titled "Exploring teachers' professional development to support the roll-out of Computer Science in Irish second-level schools"[1] conducted during the rollout of the Professional Development (PD) programme for Leaving Certificate Computer Science (CS) and funded through the SFI Discover Programme. While the report recommendations were made in the context of a PD programme for CS, the recommendations are relevant to PD programmes for other STEM subjects.

THE COHORT OF TEACHERS, TEACHER SUPPLY AND OUT-OF-FIELD TEACHERS

1. Student project work that exemplifies the scope and diversity of the subject should be showcased into the future to: (i) demonstrate a standard of expectation for project work in the subject, (ii) encourage uptake amongst students, (iii) promote the subject to the wider public.

2. In attracting teachers to take on the subject in schools, efforts should be made to encourage teachers from non-STEM backgrounds to consider taking on the subject.

3. Develop a mechanism through which participation and successful completion of the professional development programme for CS teachers delivered by the PDST could be recognised by the Teaching Council as part of the application process for recognition of an additional curricular subject.

PERCEPTIONS OF THE SUBJECT – THE DISCOURSE OF 'APTITUDE'

4. Further work should be undertaken in relation to widening participation within the schools, specifically targeting students of all cohorts and levels, particularly students that would not traditionally opt for such a subject. The reflective practice cycle of inquiry used in the professional development is an ideal vehicle to achieve this amongst the participating teachers. In particular, further work should be undertaken in relation to the promotion of the subject in schools to address the perceptions of all stakeholders (i.e. school leaders, guidance counsellors, teachers and parents) that can limit female participation in the subject.

5. Schools should consider how the subject is scheduled and what subject offerings CS is grouped with in order to avoid further gender stereotyping of the subject.

PEDAGOGICAL CHALLENGES

6. Further work needs to be undertaken as part of the professional development of the teachers to deconstruct the artificial demarcation of theory and practice that was evident in the teachers' comments.

7. Continue the establishment of the teacher mentoring scheme where experienced teachers from Phase 1 can mentor new teachers.

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[1] https://lero.ie/sites/default/files/LCCS%20PD%20Final%20Report%20August%202020.pdf

8. In offering the subject, schools should aim to timetable the subject in double class periods, and as much as possible, avoid single period timetabling of the subject.

9. Schools should also consider the accommodation requirements of the subject and the extent to which existing facilities can cater for more collaborative project-based learning that includes unplugged activities and adequate space to store equipment and project work.

ACCESS TO SUITABLE TECHNOLOGY RESOURCES IN THE HOME

10. The DES should consider recommending a specification for a basic laptop or a compatible lowcost device that would fulfil the criteria (in a similar manner to scientific calculators).

11. Schools should consider a rental/borrowing scheme for students that may not have appropriate access to suitable hardware technology to practice coding and continue project work in the home.

12. With greater use of learning management systems in schools to link school and homework, appropriate internet access is required for the student to fully participate in the subject. While this cannot be guaranteed, schools need to take this into consideration when delivering the subject to students that do not have appropriate access.

IMPORTANCE OF PRE-REQUISITE ICT KNOWLEDGE AND SKILLS

13. While the short courses in coding or digital media should not be a requirement for the study of Leaving Certificate CS, schools must ensure that all students have basic pre-requisite ICT skills.

14. The teaching of self-regulated learning skills should be integrated into the teaching of the subject to equip students with the skills to engage in the independent study that will assist them in mastering this subject. This focus can also address the problems experienced by some schools in relation to students' engagement with homework and independent study.

THE PROFESSIONAL DEVELOPMENT PROGRAMME

15. Rather than geographically assigning teachers to groups, a more organic formation of communities of practice could be encouraged so that teachers could self-organise by shared interests or stages of professional development.

16. Future iterations of the professional development may need to consider the balance between modelling specific classroom pedagogies and broader curriculum planning at a macro subject and ALT level based on the needs of the teachers.