

Developing a Computer Science Education Community of Practice for Early-Career Academics in the UK

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Abstract

In the UK, a thriving computer science education community of practice is emerging, supported by national and international professional body/learned society specialist interest groups, and being developed through relevant research and practice conferences. A key group within this emerging community of practice are early career academics who are required to overcome significant obstacles in the early stages of their academic career, from developing an independent research career, delivering high quality learning and teaching, continuing their own professional development, alongside wider academic service commitments. High quality institutional-level, but generally subject-agnostic, support for early career colleagues in the UK is supplemented by nationwide developmental sessions and initiatives such as journal clubs. This poster reports on a developing pilot scheme to support early career CS academics through cross-institutional mentoring from experienced academics, as well as buddying groups of similar career stage colleagues.

We build upon recent work [2–4] in designing, developing and delivering a pilot mentoring and buddying scheme to supplement institution-based professional development and training available to early-career CS academics in the UK, involving regional and national activities. Mentoring in higher education is common practice, however there are limitations if such guidance and support is provided within one university rather than from a wider community [5]. Use of buddying schemes has been reported as beneficial [7]; however, buddying between academic colleagues is less well reported, although it has been successful in certain contexts [10]. In this pilot mentoring scheme, early career academics were paired with a more senior academic (largely [full] professorial-level) from a different university. Brokering/matchmaking has been based on the preferences of the mentee as indicated in the response to a pre-scheme online survey. The survey capture preferences for the initial focus of the mentoring (e.g. research and innovation; learning, teaching and assessment; subject sub-specialism related; career development and planning; professional registration), together with preferences for other factors such as gender, geographical location, etc. To date, 16 early-career colleagues have participated in the scheme. In the first cohort of the pilot buddying scheme, early career colleagues were grouped into groups of five buddies on a first-come first-served basis. At the time of writing, two cohort groups of buddies have been formed. This poster provides insight into the emergent practices adopted and the feedback from the founder communities of mentors and buddies, as well as preliminary evaluation of the approach for future scaling. It provides insights for other disciplines or jurisdictions seeking to establish similar schemes and the highlights the potential of international mentoring and buddying scheme

Background

What, Who, Why Where?

What

Develop a National Community of Practice in Computer Science Education

Who is it for?

Computer Science Academics who are new to the profession in UK Universities i.e. early career academics

Why do this?

- Changes in the national computer science curricula
- Attrition and failure rates of students can be high
- Student satisfaction as measured by major national surveys is reported as commonly below that of other disciplines
- Employment rates for computing graduates reported as mixed
- Provide opportunities for identifying and sharing good practice
- Promote a mutually supportive community, when the first four points can cause pressure on new academics.

Aims

- To establish and maintain a Community of Practice and a support network for lecturers who are new to teaching computer science in UK Higher Education Institutions.
- To underpin this network through the delivery of regular seminars addressing the current and emerging practice in the learning and teaching of computer science.
- To provide a resource of links and material that share and celebrate the best and emerging practice in the learning and teaching of computer science.
- To provide a road map of regulatory bodies, funding, research groups and organisations the knowledge of, and engagement with, will help in the career development of computer science lecturers.
- To establish a mentoring network of senior computer science academics (i.e. professors, national teaching fellows, heads of department) to mentor and support the career development of new computer science lectures.
- To provide support for new lecturers applying for membership of professional bodies such as AdvanceHE and the British Computer Society.

Current Data

Currently the scheme has three parts:

1. Developmental Events, 3 of which are running in each academic year
2. A mentoring scheme, in which senior colleagues are paired with an early career colleague
3. A buddying scheme, in which approximately 5 early-career colleagues form self support groups which meet once per month during teaching periods to share successes, challenges and the resolution of those challenges.

A majority of Early Career colleagues in participating universities, but less than 20% of universities are participating.

The scheme is lead by a steering group of 24 experienced academics representing 20 universities. This includes senior academics in the form deputy pro-vice chancellors, heads and former heads of department, various members of the professoriate as well as those with significant departmental responsibilities. The 24 members are distributed across the four nations as follows:

- 16 (England)
- 4 (Wales)
- 3 (Scotland)
- 1 (Northern Ireland)

Scheme is coordinated by the 5 authors.

There are 31 volunteer mentors.

24 mentees have been matched with the mentors. At the time of writing we are looking to set up mentoring for a further 4 early-career colleagues

There are two pilot buddy groups with 5 members. We are running an event on 11th July with the intent of promoting the scheme and forming further buddy groups.

Evaluation Schemes

The literature related to evaluating initiatives such as this one takes two broad approaches: evaluation or appreciative enquiry.

Evaluation of the scheme

One such approach is Kirkpatrick's model (originally published in 1959) [6] that advocates 4 levels of evaluation

1. Reaction - perception of participants
2. Learning - what has been learnt by the participants
3. Behaviours - what has changed as result of the initiative
4. Results - how has this impacted host organisations

Many models extend Kirkpatrick's model, looking at financial aspects such as return on investment [5]. Such extensions are not appropriate for this context. Additionally, "results" may be challenging to access for this initiative.

Appreciative enquiry

One such approach is that provided by Brinkerhoff's Success Case Method [1]. In this approach the focus is upon:

1. What is really happening? - case studies
2. What results, if any is the program helping to produce - typically focusing on the best case
3. What is the value of the results? - financial value - may not be appropriate in this case
4. How could the initiative be improved? - how can the best results be achieved for more participants

What data capture is involved

In both cases, this would involved perception surveys for the events and an approach to evaluate the mentoring / buddying. Participant perceptions surveys are used in a variety of applications such as student evaluations and in spite of flaws could be of interest here. Evaluation of mentoring schemes common appears to involve the scheme administrator querying the effectiveness of the scheme from the dyad of colleagues involved in mentoring or the multiple colleagues involved in buddying. Lumkin suggests specific areas to explore [7]. The appreciative enquiry approach (Brinkerhoff's or similar) would also involve case study capture and analysis.

We are interested in your views. Which is more appropriate evaluation or appreciative enquiry? Have you used an effective approach in a similar scheme?

Future Plan

So far, the scheme has run as a pilot / prototype. The ambition is now to scale the initiative so that early-career academics from the whole UK sector have the opportunity to participate. Consideration, via collaboration with International Federation for Information Processing (IFIP) as to whether a more international approach should be adopted is also being made

To achieve this a number of challenges / opportunities will need to be addressed:

1. How to evaluate the scheme?
2. How to scale?
3. How to repeat for new CS academics?
4. What about those who stop being new CS academics and how to support in next stage of career
5. How to embed into related professional body membership registrations?
5. In the UK, the body which certifies education practice of academics is Advance HE. Commonly early-career colleagues are expected to be fellows of Advanced HE (known as Fellow of Higher Education Academy). The scheme supplements the support available from within individual universities related to computing education practice. How can the scheme be recognised by Advanced HE.
6. How to embed further support for research (education as well as computing)

Joining in?

Interested colleagues, either early-career colleagues who wish to join the scheme or more experienced colleagues either from the UK or else where can indicate interest by the link <https://bit.ly/CSEDJoinIn> or the QR Code:



Quotes from participants

"It's been useful to compare notes from an Early Career Research perspective on what's happening in other universities. Nice to socialize a little, too. The meetups are a welcome break to a hectic working week and usually gives me a nice pick-me-up."

"Beneficial to talk in an environment, that is not 'work' "

"Reassurance from other colleagues at other institutions that you are not alone in your situations, and your situations are not unique"

"One of the main positives from the group is that of a shared experience, and it has allowed us to develop a network of like-minded colleagues at a similar stage of their careers and research. It has also proved a valuable tool for venting any frustrations regarding teaching and research for a PhD. It has also shown or demonstrated that each experience from the buddy group is different, providing differing perspectives on solutions to any issues."

"Similar to the comments made by (by others) I think it's been really good to get other people's perspectives. I also think it's a good mix of people in that some have more teaching experience and some have more research experience, so it's a good knowledge exchange opportunity. It is also useful to build up a network of people from different universities and share best practice from each institution."

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