

Reflective Account of Practice: Dr Helen C. Purchase – February 2015 ¹

Position, responsibilities and roles

I have held a higher education academic position for 22 years, in two universities. I have successfully taught more than 15 courses in all levels in Computing Science, mainly in the area of Human-Computer Interaction (HCI), my research area of expertise (K1), but also in Computing Principles, Professional Skills, Artificial Intelligence, Software Engineering, Software Project Management, and Databases.

In all courses I have taught, I have had responsibility for choosing the course content, defining the aims and learning outcomes, choosing the manner and timing in which the material is presented to students, designing associated learning activities (tutorials, lab exercises etc.), and designing and administering a wide range of assessment items and providing feedback to students on their work (A1, A2, A3).

Throughout my academic career, I have supervised student projects at third year, fourth year and MSc level, mainly in the area of HCI and Information Visualization research, but also software development projects with external clients (e.g collection of medical records, visualization of medical data, educational games, presentation of publically available city council data) (A2). My approach has been to support, not direct, the student projects, encouraging independence, personal management skills and a professional approach (A4, K2).

As director of Computing Science Postgraduate Taught programmes (PGT) for seven years (see case study 2), I led a team of up to ten academics and three administrative staff. I led the process of defining and restructuring our Masters programmes and courses several times (A1, K6).

I was convenor of a university-wide Working Group on Course Feedback in 2013/4, whose remit was to develop a course feedback questionnaire to be used across the whole university, with special focus on acknowledging and rewarding excellent teaching practice – a challenging task that had been attempted by prior groups in the university without consensus being reached or university approval being given. The group consisted of eight members of academic staff from across the university (all but one of whom I did not know), two administrators and a student representative. I produced a report and a framework for flexible questionnaire design which was well-received by the university Education Policy and Strategy Committee, and the University Council of Senate. Its recommendations will become university policy from September 2015 (K5, K6). Based on my success in leading this group, in January 2015 I was appointed convener of the university-wide Evasys Advisory Board, whose remit is to oversee the implementation of the policy in tandem with the Evasys Course Evaluation software.

As Advisor of Studies for both undergraduate students, I advise students throughout their whole degree career, thus having an opportunity to see them as individuals who develop over the years, and need ongoing (not compartmentalized) support (V1).

At Glasgow University, I am an elected member of the Council of Senate, an elected member of the Education Strategy and Policy committee, and a nominated member of the university's Learning and Teaching Committee. (K6) – all elections and nominations that are based on my reputation throughout the university. I am a member of the university-wide working group on "Implementing the University's e-learning strategy", the university student conduct committee, and the college ethics committee.

¹ Note: References in brackets here and in the case studies refer to the dimensions of the UKPS framework (A,K,V), and the associated descriptors for Senior Fellow of the Higher Education Academy (i,ii..vii).

I am a mentor for a new member of staff on the university's Early Career Development Programme. I was coordinator of the Transferrable Skills Programme for PhD students in the College of Science and Engineering for 18 months (2012-3).

I am Student Mobility co-ordinator for the School of Computing Science, encouraging home students to study abroad as well as supporting the wide variety of incoming exchange and Erasmus students. Computing science programmes worldwide tend to be less flexible than many of those in arts, social sciences or humanities, and I have found that computing science students are typically more conservative in their outlook: my challenge is to provide sufficient personal support and academic guidance so as to enable students to benefit from studying abroad, while attempting to address their anxieties by providing clear, reasonable and unambiguous processes. My efforts have been rewarded by a five-fold increase in the number of students going abroad since I have taken this role.

Recognition

Both universities I have worked for have awarded me Teaching Excellence Awards – in both cases, only 5 or 6 are awarded annually across the university. I am a Fellow of the British Computer Society.

In parallel with my HCI research, I have published 31 papers in a range of education topics: nearly one-third of my publications are educational (A5), the earliest being 1995, and the most recent being 2014. Educational topics I have published on include:

- An ethics code for student projects (V4)
- Personal Response systems for interactive lectures (K4, K2)
- Tutor training for Computing Science tutors (V3)
- Peer-assessment in HCI (K2, K3)
- Supporting easy programming for young teenagers (V2)
- On-line peer assessment (K4)
- On-line collaborative multiple-choice authoring (K4)
- Contributing student pedagogies (K3, A4)

I have received funding for educational projects as follows:

- Faculty Teaching and Learning funding for a new first year Computational Thinking course (£1,000) (A1, K2, K3)
- HEA funding for adapting the Aropä system (*see case study 1*) for multi-institutional use (£3,450) (K4, V3)
- University Teaching and Learning funding for developing and evaluating technology to support peer collaboration in writing and answering examination questions (£20,900 over three years), with colleagues from the Medical faculty and the Learning and Teaching Centre (K4, V4)
- University Staff Mobility funding for a visit to Lund University to investigate their academic development practices, and their means of sharing successful teaching practices amongst colleagues (£1,930) (V4, A5)

I am regularly asked to review papers for educational conferences (e.g. Innovation and Technology in Computer Science Education, Australasian Computing Education) (A5) and have been external examiner for taught programmes (both undergraduate and postgraduate) at the following universities: Kent, Stirling, Hertfordshire, Heriot Watt, Lincoln, Oxford, Cork (K6).

I voluntarily completed a Graduate Certificate in Education (Higher Education) at The University of Queensland in 1998 (A5). What I learned most from this programme was the importance of pushing

the boundaries: pushing the boundaries of what I felt comfortable doing, and pushing students' boundaries to encourage them to go further than they expected (V1, V2, K3).

I have been invited to give talks and workshops to other academic members of staff about my teaching practices: in particular (UQ) teaching small classes, peer assessment, criterion-referenced assessment, students' educational preferences, and (GU) using a criterion-based assessment scheme, educational technology to support peer assessment.

Teaching philosophy

My teaching philosophy is one of continual improvement – striving to do better than last time, and knowing that there is always room for improvement – not least because of changes in content, technology, students' attitudes and backgrounds (V1), and new findings from educational research (A5). I am always keen to try new approaches to teaching, for example, peer review, contributing student approaches, research-led teaching, concurrent development of graduate attributes, personal development planning (PDP) and studio-based design sessions (A5, K5).

I am a reflective practitioner, and make personal reflective notes after each teaching session. Every year my preparation is influenced by the notes that I had made after every lecture, tutorial or assessment the previous year, ensuring I don't make the same mistake twice, and ensuring continual improvement. I have followed this practice uninterrupted since 1993 (V3, A4). This practice has two effects: firstly, I have the satisfaction of knowing that my teaching practice is always improving; and secondly, it gives me the confidence to try out new ideas, as this practice has demonstrated to me over the years that good teaching is more of a process than a product.

My teaching philosophy has developed over time. As a new, anxious lecturer, I found confidence in content: the knowledge was what mattered, and presenting knowledge that I knew (and I was sure the students didn't) ensured that I was in control. This attitude soon gave way to a more flexible approach, as I realized that students themselves possess a wide range of experiences and ideas that I do not have (V1), and that encouraging them to contribute to class discussion can enrich the learning experience for all (A4). More recently, and with the advent of easy access to digital resources, my approach has changed yet again: with a wealth of knowledge at their fingertips, I believe that it is crucially important for students to develop research and critical thinking skills (K3), and to recognize their own responsibility in their learning (V1); my role becomes more of a facilitator of their learning journey than a director of their study of knowledge (A2).

In Computing Science, this change of approach is important (K2): when technology changes so rapidly, what matters is not that the students are tasked with learning about a particular technology or computing paradigm, but that they are given the opportunity to develop the skills that will allow them to understand new technologies and approaches as they appear; thus, the responsibility for learning and understanding the particular technology become theirs, done within their own context (V1).

A consequence of this is the need for novel courses (A1, A5): I developed the first HCI course held at The University of Queensland, and, at The University of Glasgow, I designed and implemented the first Research Readings courses, the first Computational Skills course, the first studio-based HCI course, and was instrumental in the design of the first Professional Skills course (a course that I substantially changed in later years).

I have a passion and enthusiasm for teaching that is often commented on by students. I love what I teach and I like finding new and engaging ways of teaching it. I enjoy the challenge of communicating difficult concepts (e.g. statistical tests, modelling, design processes) in a way that ensure the students

only learn the essence of what is important (not being overwhelmed with detail), while being given the skills to be able to advance their understanding independently.

As part of my teaching, I have introduced several non-traditional teaching methods, including peer review, criteria-based qualitative assessment, interactive tutorials and lectures, large group discussions, spontaneous presentations, studio-based design, professional development planning exercises. I attempt, as much as possible, to know students by name, and always include some group or public interactivity in all lectures: I never conduct a class without including at least one class exercise or discussion point that will engage the students in active learning (A4, K2, V1). I seek interim mid-semester feedback from students, discussing the results with them, and making changes for the rest of the semester where appropriate.

Activities

Early in my career (2000-2001) I was a member of the “Building the Internet Workforce” project team, funded by the Australian Government. This collaborative project (universities of Queensland, Monash and Sydney) produced a repository of high-quality undergraduate computer science teaching materials and resources to be shared between universities (K4, A4, V4, K6).

For six years (1995-2001), I was director of a three-day Information Technology vacation school for 60 final-year school students, chairing the committee for the initiation, planning, design and organization of this vacation school. I annually led a team of three academic staff, two administrative staff, two technical staff, three research assistants, and up to fifteen tutors. The challenge in this project was determining the best way to teach students who had not programmed before sufficient concepts for them to make progress and become engaged in the activities, without overwhelming them with complex details that might discourage them. This project resulted in the publication of two educational research papers.

I was a member of the HCI Disciplinary Commons in 2006/7 (led by Sally Fincher and Janet Finlay), where I developed a portfolio of reflective practice which covers the context of my HCI teaching, as well as information on the content, instructional design, evaluation and feedback (<http://www.cs.kent.ac.uk/people/staff/saf/hcidc/portfolios/hcp-commons/index.html>) (V3, K2, A4, A5).

Based on a successful pilot project in 2014, I have been successful in obtaining seed funding for a scheme whereby computing science students are given internships with local charities, to assist them with their IT infrastructure and use. Importantly, these internships will target those students who are not typically successful in gaining software engineering internships in the private sector; that is, those students who are not necessarily amongst our top-performers (V1, V2).

I have been a member of three working groups at the ITiCSE conference (A5, K3):

- Research methods in computing: what are they, and how should we teach them?. This group considered the nature of research skills in Computing, why they were important, and how they could best be taught. I proposed an iterative four-phase model of goal-driven enquiry that formed the basis of our teaching framework. The outcomes of the project were published in ACM SIGCSE Bulletin, 38:4, 2006, p96-114.
- Contributing Student Pedagogies. This group defined the range of pedagogies that could be considered as ‘contributory’, relating them to constructivist and community theories of learning (K3). We related it to the particular needs of computing science education. The outcomes of the project were published in ACM SIGCSE Bulletin, 40:4, 2008, p194-212.
- Tools for “contributing student learning” (co-leader). This group surveyed, compared and discussed tools being used to support collaborative activities in Computing Science

education, identifying gaps, limitations and opportunities. The outcomes of the project were published in ACM Inroads, 2:2, 2011, p78-91.

In summary, I am an active and reflective teaching practitioner who strives for continual improvement. I am interested in applying ideas and practices that have been shown to work elsewhere (e.g. peer review, reflective practice, formative assessment), trying out novel ideas of my own, and engaging in sharing good practice through research collaborations and publications.