

# Promoting Best Practice in Information and Computer Science Education Through the UK National Subject Centre

Sylvia Alexander  
Faculty of Informatics  
University of Ulster at Jordanstown  
Newtownabbey, Co. Antrim, Northern Ireland  
S.Alexander@ulst.ac.uk

Prof Tom Boyle  
School of Informatics and Multimedia Technology  
University of North London  
Holloway Road, London  
t.boyle@unl.ac.uk

Dr Mike Joy  
Department of Computer Science  
University of Warwick  
Coventry  
M.S.Joy@warwick.ac.uk

**Abstract:** The Learning and Teaching Support Network (LTSN) has been established to promote high quality learning and teaching in all subject disciplines in higher education. The Centre for Information and Computer Sciences (ICS) is one of the 24 Subject Centres who supports the sharing of innovation and good practices in learning and teaching in both the information and computer sciences. The Centre will act as a catalyst for change providing both a pro-active and a responsive service to address the evolving requirements of the discipline community.

## Introduction

In the UK, the Learning and Teaching Support Network (LTSN) has been established to promote high quality learning and teaching [See <http://www.ltsn.ac.uk>]. The Centre for Information and Computer Sciences (ICS) is one of 24 Subject Centres who together with a Generic Centre make up the LTSN. The network supports the sharing of innovation and good practice in learning and teaching including the use of communications and information technology (C&IT). The subject discipline focus of the LTSN recognises that for many in HE it is at the subject level where most networking and exchange of best practice and innovation takes place. By working with subject-based communities, the LTSN provides an effective means for dissemination of information and practitioner support.

In recent years the services traditionally offered by the library and computer centre have converged in many HE institutions. The establishment of a Centre for ICS mirrors this change and constitutes a major strategic response to the challenges facing academic practitioners within the disciplines of Computer Science and Library & Information Science. By merging existing capabilities within the two disciplines the Centre aims to create a powerful new force for the development of products and services accessible to the entire learning and teaching community.

LTSN-ICS aims to make a rapid and far-reaching contribution to ICS education through:

- identifying and promoting pedagogical innovation and best practice;
- promoting the integration of appropriate C&IT techniques to enhance learning, teaching and assessment;
- building and supporting networks for exchange and dissemination of expertise in relation to developments in learning and teaching;
- opening virtual and regional access points to expertise and resources which will encourage and invigorate local, national and international special interest groups;
- maximising the opportunities for sharing knowledge and evaluating achievements amongst academics;
- creating opportunities for continuous professional development.

## Priorities

The Centre is located at the University of Ulster with partners at Loughborough University, University of Warwick, Heriot-Watt University and University of North London. In order that the Centre can respond to the evolving

requirements of the discipline, an early priority was to identify the needs of the subject disciplines. A comprehensive on-line needs analysis survey was issued [<http://www.ics.ltsn.ac.uk/needs.html>] and the information gathered was used to identify national trends and emerging developments to direct the activities of the Centre. Based on these findings, the authors engaged in informal debate with the community in order to explore:

- requirements for best practice in the teaching and learning of ICS, especially the application of C&IT to support the teaching and learning process;
- the extent to which educators are forging strategic partnerships at local, national and international level to enable and support change in the content and delivery of information and computer science courses.

Results of the survey identified a requirement to promote quality practices in the following areas:

### **ICT**

There is an urgent need to underpin the appropriate use of innovative techniques. Given the particular nature of the ICS community it is recognised that learning technology will play a particularly important role and can act as a driver for the transformation of teaching and learning practice. The Centre fully supports this driving role, while emphasising that such innovations must be deeply pedagogically informed. It provides information and advice on strategic approaches to C&IT based learning support, i.e. the traditional instructionist and the more modern constructivist and dialogic approaches. The Centre will foster and support innovative developments and will widely promote learning technology as a significant and valuable area of research within the ICS discipline.

### **Collaborative learning**

Today's employers have articulated the need for students to improve their communication, project management and team-working skills. Small group project work, in particular inter-institutional work, provides an ideal platform for developing competencies in these areas. New network-based tools that facilitate Computer Supported Collaborative Learning (CSCL) are particularly useful for the flexible interaction required in distance learning. The Centre will provide for the exchange of expertise and appropriate protocols for collaborative learning.

### **Distance learning**

The future demand for ICS education is unlikely to be fully satisfied by conventional courses. Flexible and distance learning is recognised as a vehicle for widening access to programmes of study. Imaginative use of educational technology has the potential to revolutionise the learning environments of our students and provide an opportunity to share resources on an international basis. Experience in areas such as work based learning and the development of a virtual university will be disseminated to the ICS community through the Centre.

### **Networks of expertise**

ICS education is characterised by a rapid rate of change and the short shelf life of curricula and support materials. The Centre actively supports academics by establishing and maintaining practitioner networks providing a forum for innovators to discuss frameworks to guide the integration of innovations into dynamic local academic programmes. A particular requirement for the ICS community is the need to target an increasing number of newly appointed staff, so as to provide immediate opportunities for them to engage with networks facilitated by the Centre.

### **Dissemination and collaboration**

Central to the operation of Centre is a comprehensive web service providing an immediate platform-independent route to current materials suitable for wide scale access and re-use [See <http://www.ics.ltsn.ac.uk>]. The website provides a 'one-stop-shop' to expertise, resources and world-wide exemplars of good practice. Traditional workshops and seminars are complemented by a programme of web-based video-conferencing events, enabling international participation and interaction. The Centre also supports specialist and emerging areas by facilitating electronic focus groups which are used to provoke debate on the enhancement of learning and teaching. Strategies will be developed to ensure that a valued service is maintained and services will continue to evolve and be amended in the light of ongoing monitoring and evaluation activities.

The Centre actively seeks academic opinion and will undertake a programme of measures to engage effectively with the teaching community. Academic staff from an international audience are positively encouraged to contribute to the activities of the Centre. Through collaborative working the Centre anticipates greater sharing of knowledge, thus enabling effective dissemination of new methods, tools and materials. The ultimate goal of the Centre is enhancement of the quality of learning and an increase in efficiency through the integration of innovative practices into curriculum delivery.