



**SCoTENS**

**The Standing Conference  
on Teacher Education, North and South**

# **TEACHING IN THE KNOWLEDGE SOCIETY**

Secretariat provided by

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**2007 CONFERENCE AND ANNUAL REPORTS**

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The Standing Conference on Teacher Education,  
North and South (SCoTENS)

# **TEACHING IN THE KNOWLEDGE SOCIETY**

**2007 ANNUAL CONFERENCE AND ANNUAL REPORTS**

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## Chairpersons' Introduction

Welcome to the 2007 annual report of SCoTENS (the Standing Conference on Teacher Education, North and South). This report incorporates the proceedings of our fifth annual conference as well as a financial statement and reports on the other conferences, networks and research activities supported by SCoTENS. Together they provide evidence of continuing progress and endeavour during the year under review.

SCoTENS emerged out of a highly successful conference in 2000 and aims to develop discourse among teacher educators across the island of Ireland with a view to encouraging open, critical and constructive analysis of both current provision and future collaboration. Its intention was and is to stimulate and sustain wide involvement in a continuing process of informed enhancement of professional practice. This was a point warmly endorsed by Mary Hanafin TD, Minister for Education and Science, in her opening comments to the 2007 conference. When referring to strategic conversations between the two education departments ( North and South ) she remarked that she and her Northern Ireland counterpart, Caitriona Ruane, would not be able to work at ministerial and departmental level if "the 'on the ground' work had not been happening in the last few years" in frameworks like that set up by SCoTENS.

The theme of the 2007 SCoTENS conference was 'Teaching in the Knowledge Society'. The theme and title sought to emphasise the impact of the knowledge society on teaching, including critically the important contribution which teachers and schools make towards equipping young folk with the insights, skills and attitudes required to be productive citizens within a 21st century setting. Conference voices echoed and affirmed Andy Hargreaves oft quoted assertion that teaching is the key agent of change in the knowledge society, a point reflected by Mary Hanafin when she emphasised the importance of supporting teachers in a changing world, where society is becoming more dependent on knowledge.

Conference delegates were challenged by an impressive line up of visiting speakers. Professor John Furlong of Oxford University pointed out two key paradoxes of the knowledge society: knowledge both more valued yet never more contested and the drive for knowledge creation in an education system dominated by instrumentalism. These were themes echoed in David Istance's address when he called for teaching to be transformed into a knowledge-rich profession and highlighted the changes the knowledge society required in terms of governance – reinventing schools rather than just reforming them – innovation and learning. He concluded, quoting Michael Barber: " The characteristics which defined the successful education systems of ,say, 1975,are unlikely to be those which will define success in the future." Eamon Stack and Keith Bartley both provided enlightened comments on the impact of the knowledge society on teachers and teaching, and Roger Austin addressed delegates with his



characteristic enthusiasm on what such a society means in concrete terms for educators in terms of both knowledge retrieval and knowledge creation.

From the outset, SCoTENS has been insistent that its annual conference should be a working conference, with the dual function of drawing together and disseminating the first fruits of various initiatives at different stages of development and providing a forum for gestation of new networks and projects. 2007 was no exception. Much of the enlightenment and challenge reflected in the keynote addresses were augmented through a rich portfolio of workshops, reported on later in this report.

The conference also provided the opportunity to report on work completed or in progress and to shape a work programme for the year ahead. During 2007-8 SCoTENS provided seed funding for a number of North/South networks, conferences and research projects. These included: Digital video as a tool for changing ICT learning; Moving towards creativity in arts and science education; Cross-border exploration of CPD needs of heads of year; Developing reflective skills in student teachers; Bringing school communities together to promote education for diversity; Building effective science outreach strategies North and South; Social justice education in initial teacher education – a cross border perspective; IASSEE all-Ireland longitudinal study of student perceptions of history, geography and science education; School-based work in the North and South of Ireland – exploring the role of the HEI tutor; Cross border exploration of CPD needs of heads of year; Professional development needs of teachers working in the area of Special Educational Needs; Examining assessment procedures for trainee teachers – a comparison.

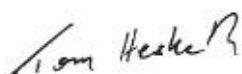
The progress reports included in this volume provide a concise account of the individual projects and a glimpse of the rich and impactful range of activity which is going on under the SCoTENS umbrella.

The expansion in the activities of SCoTENS has been facilitated by the generous support of the Departments of Education, North and South, and, increasingly, by the subscriptions of our affiliated institutions. The overwhelmingly positive financial response from HEIs involved in teacher education on the island of Ireland and from other educational partners testifies to the value which SCoTENS can and does bring to teacher education. With relative financial security, we can now concentrate on our ambitious work programme and in the coming year align this even more with governmental research priorities.

As well as acknowledging the support of our sponsors, we would like to express our gratitude and appreciation to the staff of the Centre for Cross Border Studies



who provide administrative support for SCoTENS, and especially Patricia McAllister and Andy Pollak on whose tireless efforts and organisational skills we rely. We would also like to thank the management and staff of the Grand Hotel, Malahide who not for the first time provided a welcoming venue for our conference. Finally, we thank our fellow members of the SCoTENS committee and, above all, Professor Richard McMinn our out going chairman. Richard has been involved in SCoTENS from its outset. We have benefited greatly from his wisdom and passionate espousal of teacher education as an indispensable pillar of an effective education system.



Dr. Tom Hesketh  
Co-Chairperson



Dr. Pauric Travers  
Co-Chairperson

## **Teaching in the Knowledge Society Annual Conference**



**Grand Hotel, Malahide, Co. Dublin  
22 - 23 November 2007**

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## DAY ONE

### OPENING ADDRESS

**Ms Mary Hanafin TD**  
**Minister for Education and Science**

Thank you very much for the kind invitation to be with you here today. It was as Minister for Children that I attended the original conference which led to the setting up of SCoTENS in the Hilton in Belfast in 2000. So I am particularly glad to be the one to open this fifth conference and to be part of this successful venture in north-south cooperation in education. It is wonderful that in the last few weeks we have had a number of occasions where we have seen such north-south engagement between teachers, school leaders and indeed Ministers of Education on issues of really serious interest to all of us in education. It is extraordinary to see the level of cooperation that is now taking place and the progress that we are starting to make on such issues, which will benefit not just those of us employed in education but more importantly the children and young people involved.

The only thing wrong with SCoTENS I have to say is the name – why does everything in education has to be called by acronyms? But otherwise the picture is a very positive one – it is wonderful how we can sit around a table and work together closely on matters of mutual concern. Last week we had our North South Ministerial Council meeting on education. One of the things on the agenda for that meeting was the Middletown Centre for children with autism: here is something that is going to be so tangible and real and can make people realise that by working together on an all-Ireland basis we can ensure that all the people in our care are getting the best benefits. We also discussed things relevant to today's conference, like teacher training and teacher qualifications, and how we need a lot of teachers in the South while in the North there is a surplus of teachers. This is real cooperation. The previous week Catriona Ruane and I opened an OECD conference on leadership in schools which we had jointly sponsored, and here we are today building on the work that you have been doing over the last number of years.

I mean it quite genuinely when I say that we wouldn't be able to work at the level that we are working at – ministerial or departmental level – if the 'on the ground' work hadn't been happening for the last few years. If the type of interactions, workshops, seminars, publications, talks and visiting speakers hadn't been going on in frameworks like that of SCoTENS, the barriers wouldn't have been broken down to the same degree. The contribution that SCoTENS, the Centre for Cross Border Studies and Andy Pollak have made to the overall process of peace and cooperation in this country is probably not widely noticed, but it is certainly well recognised and well appreciated as part of the overall process.

Look at what SCoTENS has done over the last couple of years and you will see very valuable publications, really good conferences, educational materials that are of value to people and – as Pauric Travers mentioned –the work on cross-border cooperation in Special Education which I think is a particularly good example. Then there is the conference that you are having today and tomorrow on teaching in the knowledge society. When I looked at the conference workshops I noticed that they don't link at all to the overall conference theme, and I was told they relate to the research and other projects which are part of the ongoing work of SCoTENS. That in itself shows the real value and breadth of what you are doing.


You are very fortunate over the next couple of days to have very distinguished speakers like John Furlong and David Istance, who are on the platform with me. The choices facing teachers, teacher training, ongoing professional development of teachers and how teachers try to meet the expectations of a rapidly-changing society are going to be constant themes of everything we do in the future. Yesterday IBEC were looking for young people to be educated in such a way that they are confident and articulate, able to use new methodologies and to have good presentation and communications skills. They are 100% right. Yet last August, on the day the Leaving Cert results came out, IBEC said we would be far better off if we focussed on science and maths. Again they are absolutely right – so here is one group of people with two different expectations. They are not mutually exclusive by any manner or means – but we have to rise to both these expectations.

At the same time we have league tables in newspapers telling us how good you can be if you go to a 'grind school', which contradicts what IBEC is saying about the broad education, skills and the flexibility that we need from our students. Our teachers are the people who have to deal with these enormous and sometimes contradictory expectations. They have to be trained in such a way as to be able to handle this onerous task, and obviously ongoing professional development – which is something that has only in recent years become imbedded in the culture of schools and (dare I say it) in the culture of our respective departments – has to be supported. I am seriously impressed when I see the number of teachers who not only in school time but also in their own time continue with courses for their professional development: to be better teachers in their classrooms and to be better leaders in their schools.

Similarly I note you are having a workshop on diversity in education, which again is a very big challenge, but one in which I believe huge progress is being made. I visited a school this morning where the principal said to me that one thing we were getting right was providing specialised teachers of English for 'newcomer' students (I know if I go to other schools they will tell me it's the one thing that we are getting wrong!). I also love the idea of a workshop on creativity in art







and science education. I remember doing a Gael Linn debate when I was 15 and it was on “tá gá níos mó leis an healaiontoirí ná leis na heolaithe”. I remember saying that you needed both the person with the imagination to look at a bird flying and to say ‘that could be me’ and also the scientist to turn it into an aeroplane. We are often not good at capturing that creativity in young people and we are not very good at extending it across our teaching and learning experiences. Similarly the use of ICT in schools, where the students are often in advance of the teachers, is a major challenge, and I know that in the North you have invested a lot in this and made great progress on it. One of our great challenges over the next few years is to make sure that we have not only the hardware and software, but also the training and the technical support for teachers in this vital area.

We live in exciting and challenging times for education. I spent two hours in the Seanad before I came here talking about education, and we spent three hours in the Dáil over the past two days discussing it. One thing I said in my contributions there was that the quality of the teachers we have in this country is something that other countries look to us with awe. The fact that we are still getting the top quartile of our Leaving Cert students into primary education means that we are starting with a very ,very strong cohort of highly intelligent and keenly interested young people; similarly the fact that university students taking the HDip are people with good honours degrees who have to compete for their places.

The more we can do on an all-Ireland basis through organisations like SCoTENS to support areas such as Special Education, diversity in education, continuing professional development and ICT, the more our education systems in general and the students in our schools and colleges in particular will benefit. I have no doubt that your two days will be very successful and I look forward to reading the proceedings from it.

## THE UNIVERSITIES AND EDUCATION: THE CHALLENGE OF THE KNOWLEDGE SOCIETY

**Professor John Furlong,**  
**Director, Department of Education, University of Oxford**

*'Education is the second largest discipline under consideration and perhaps one of the most complex. Structural, historical and institutional factors affect all disciplines in different ways but in education their impact has been quite profound' (Mills et al, 2006: 44)*

In this paper I want to consider three fundamental questions about the current position of the field of education within higher education. I want to ask 'Where are we?'; 'How did we get to be where we are?' and 'Where might or should we be'. In answering these questions I will be referring primarily to experience within the English policy context, although some of the data I draw on are based on figures for the UK. I leave it to you to consider the relevance and implications of what I have to say for Northern Ireland and the Republic; I suspect, however, that there are many similarities although there may also be some key differences.

### **To begin...**

I think that the first question we need to consider is 'What is a university anyway?' Of course the 'idea' of a university is a highly contested concept. The traditional notion, derived from Newman's ideas that it is an institution that is dedicated to the pursuit of 'truth', has been hard to maintain in a world of relativist conceptions of knowledge. And yet for me there is still an important and essential truth in Newman's ideas. Universities may no longer be institutions where truths are disseminated; none of us have that confidence in the knowledge that we hold any more. However, universities are, I believe, still distinctive in society in that they are places that make a commitment to the 'pursuit' of truths; they are institutions that make a commitment to a certain sort of process. And at the heart of that process is a fundamental commitment to what I will call the contestability of knowledge. It is this commitment to the idea that all knowledge can and should be contested that is at the heart of our teaching, at the heart of our scholarship and at the heart of our research. This is what makes universities distinct in our society. There are no other contemporary institutions where the 'contestability of knowledge' is such a core value.

But of course, the field of Education itself has always had a very fragile relationship with universities. In England there has been a 150 year history of a slow and steady institutional integration into the higher education sector. In England today faculties of education are now almost universally integrated into the university system. Yet despite this, I would argue that integration is in many ways still very fragile. Indeed, one might argue that integration into the core

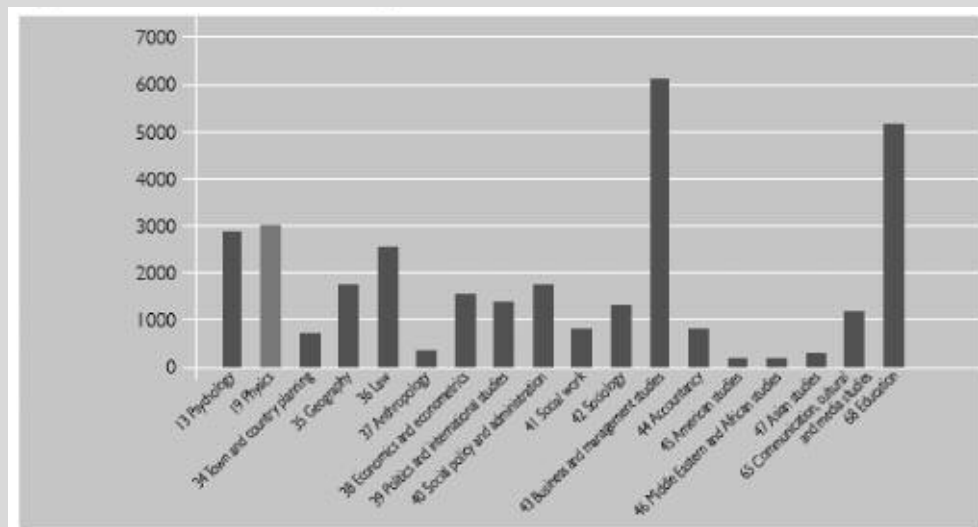
values of higher education (encapsulated, as I have said, as ‘the contestability of knowledge’) may well be weaker today than it was say 20 years ago.

### Faculties of Education – where are we now?

I now want to look at a number of factors that help us characterise the shape and size of the field, as it is currently constituted.

In trying to understand the current position of Education as a field we should perhaps begin by recognising that it is very large: it is currently the second largest social science discipline within the university sector in the UK. The following table, taken from the recent ESRC demographic review (Mills et al, 2006), demonstrates this clearly. Education, with around 5000 academic staff, is second only to Business Studies and Management in terms of size. Other disciplines are much smaller in number – Psychology has under 3000 staff (about the same number as Physics) and Sociology about 1200. Disciplines such as Anthropology and Social Work are smaller still.

**Figure 1 HESA Staff record 2003/4 by selected UoA Staff Numbers**



(source: *ESRC Demographic Review: Mills et al, 2006*)

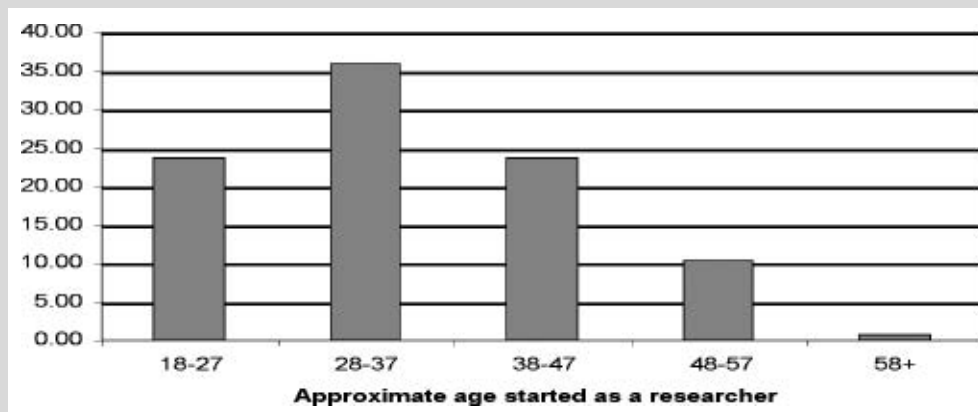
The ESRC Demographic Review also gives us some important evidence on the current make-up of the field. In terms of age it is clear that Education has an aging population with over 50% of academic staff over 50 years of age (based on 2003/4 data) – indeed, it is the subject area with the largest percentage of staff over that age. Education is also a highly feminised field and the percentage of women has been increasing over time. In 1995-6, 46% of Education academics were female; by 2003-4 the figure had risen to 59%. Such a finding could well be linked to a further fact – that salaries are substantially lower than in other disciplines, with Education staff having one of the lowest proportions of staff on higher salaries.

The ESRC Demographic Review also provides evidence on nationality and ethnicity. The number of non-UK nationals employed in the field is, at 4%, the lowest of all of the social sciences (every other subject has figures in the mid-teens). It is also a predominantly white field with the lowest proportion of non-white staff – 4%.

#### Where do Educationalists come from?

Another distinctive feature of our field is that Education academics have shorter careers than many others. Evidence suggests that staff typically have a dual career, switching into higher education after a teaching career. As a result, university careers are much shorter. What Figure 2, below, demonstrates is that 30% of staff do not even enter higher education until they are over 40, with a small number even entering over the age of 58.

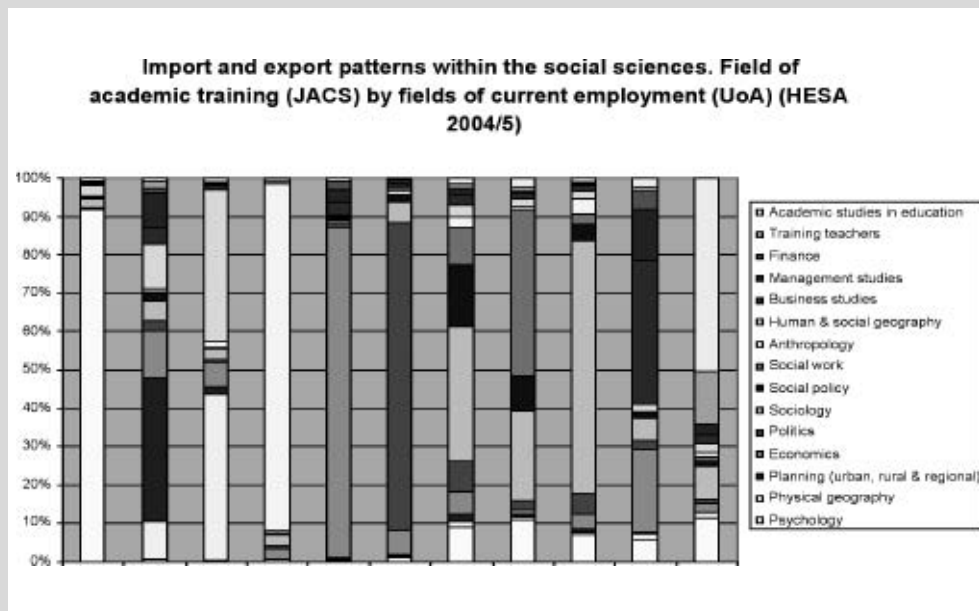
**Figure 2 Aggregated approximate age of entry to Education**



(Source Taylor, 2002, p14)

We can also put together some important data on the relative 'purity' of different disciplines. As the table below shows, Education is a very 'impure' field compared with, say, Psychology, Anthropology or Economics. Only 50% of Education staff undertook their highest level qualification within the discipline. Overall, therefore, Education as a field is a significant 'importer' from other disciplines.

**Figure 3**



(Source: Mills, 2007)

One further factor that marks Education out from other disciplines is the very low proportion of staff with doctorates as their highest qualification. According to HESA data, the percentage of Education academics with a doctorate is currently 25%; in Psychology, the equivalent figure is over 60%.

As a field of higher education, Education is therefore very different in many ways from other disciplines. But of course it is not a unified field; there are important institutional differences that we need to be aware of as well. Amongst the pre-1992 university sector, there are some universities and departments that increasingly characterise themselves as the 'research elite' while others might be seen as the 'research insecure'. Twenty years of the RAE has had an enormous impact on differentiating what was once a much more unified sector. Amongst the post-1992 universities there are also substantial institutional differences. There are the ex-polytechnics – mainly urban and highly diversified universities, often serving a regional community. And there are the ex-teachers' colleges which are themselves increasingly diversifying – some into relatively small liberal arts, teaching-only universities, others (what we might call 'the new entrepreneurs') are growing and diversifying rapidly. Each of these different types of university itself has a different history, a different trajectory and sets up very different 'lived realities' for their staff and their students.

### **Teaching and Research – where are we now?**

#### **Teaching**

For the majority of Departments of Education, much of our core teaching remains focused on initial teacher education – the BEd and the PGCE - although many departments also have a strong programme of CPD work with a growing focus



on the MEd. Additional programmes, which vary substantially in their significance between different universities, include MSc, EdD, PhD and then a range of specialist professional courses such as EdPsych and TEFL degrees. As I will argue below, these additional, non-ITT courses are of particular significance within Education Departments' economies.

But it remains the case that in almost every Department of Education in England, initial teacher education is a key component. This is highly significant in that initial teacher education in England is funded and managed by the TDA – the Training and Development Agency for Schools. The TDA defines course structure and course content – expressed in the form of 'standards'. And it works in collaboration with Ofsted to undertake course inspection within an agreed framework; the results of those inspections produce course and institutional league tables.


Perhaps most significantly of all, the English government, through the TDA, insists that there are multiple providers of initial teacher education. There are currently 32 different routes into teaching, with almost 20% of entrants being prepared through employment-based routes. In other words, although 80% of trainee teachers do enter the profession through a higher education based course, for the English government, higher education has no essential contribution to make to professional education. Teacher education, as defined by the TDA, is an entirely instrumentalist activity. Many universities may and do run courses that are far from instrumentalist in their approach to professional education, but it remains the case that, in terms of what is formally expected, and particularly in terms of what is formally inspected, the government's model of professional education is predominantly instrumentalist.

### ***Strengths and weaknesses***

Overall, if we critically examine our teaching in our main area of work – initial teacher education – we can see that, as it is currently constructed, the sector has both strengths and weaknesses. There is strong evidence that over the last 15 years teacher education courses have become more consistent and, if Ofsted evidence is to be believed, of higher quality. There is also strong evidence that student teachers are far more satisfied with their professional preparation than a generation ago, as indeed are their head teachers in their first posts. Recruitment into initial teacher education is also more consistently strong than in the past. These are real success stories.

There are, however, real weaknesses which, I would suggest, come about because of the domination of government imposed instrumentalism. The highly practical focus of almost all forms of initial teacher education has had a major impact on theory, on research, on the topics that Departments of Education are staffed to teach, and on staffing – on who is recruited and on what sorts of staff development opportunities are made available to them. On all of these issues, I





would argue that the government's instrumentalist agenda has reduced and narrowed the scope and the culture of university Departments of Education.

### Research

*'There is much to be done to increase research capacity in such a large discipline, and no quick-fix solutions. Education, more so than all other disciplines, is vulnerable to changes in policy legislation, affecting schools and Higher Education alike. The variety of types and locations for educational research also make communication difficult and work against the creation of a proactive research agenda that addresses both educational theory and practice.'* (Mills et al, 2006, p45)

In trying to understand the current state of education research we should perhaps begin by recognising that Education is a field, not a discipline. Lynn Yates, the Australian educationalist, has recently published a highly popular book called 'What does good educational research look like?' (Yates, 2004). In it she emphasises how much educational research is differentiated. It is differentiated in terms of methodology – from RCTs to action research; in terms of theory – from atheoretical positivism to post modernism; and in terms of purposes - policy research, applied and practice based research, and blue skies research. On all of these counts, she argues, there is substantial variation across the field. As a result, educational research becomes highly vulnerable to critique, to fashion and, particularly important in England, to government intervention. One is perhaps left wondering if, in other social science disciplines, it would be necessary to write a book with such a title. In most disciplines things are much clearer; there is more consensus as to what good research is than there currently is in Education.

One important factor influencing the current nature of our research culture is the source of funding. Overall, funding levels are strong with £70-75 million a year available to support educational research overall. However, the sources of funding are perhaps different from other social science disciplines. For example, educational research is three times more likely to be funded by government than by research councils; it has relatively low funding levels from industry and EU but has a strong profile of funding from charities. And the impact of these different funding sources is not neutral. Government bodies are often far more instrumental in their approach to research than other funders. And neither charities nor government bodies expect that same social scientific rigour that is demanded by research councils or the EU; peer review also often means something different for these funding bodies. Despite the high levels of funding overall, therefore, these factors have a significant impact on the character and quality of research in our field.

It is also important to recognise the highly differentiated nature of the system. As the OECD observed in its 2002 report on Educational Research in England, while there are at least 100 separate institutions conducting educational research, 80 per cent of the funding from government, charities and research councils goes

to just 22 institutions (CERI 2002). As a consequence, the ESRC Demographic Review noted: 'A mid range of institutions (graded 4 or below in 2001)... with a substantial community of research active staff... are finding it virtually impossible to attract significant funding for research' (Mills et al, 2006). This in turn has an impact on research cultures. An analysis of the size of research groups reported in the last RAE demonstrates that staff in higher rated departments were far more likely to be working in larger research groups and in an overall supportive research culture. (McLeay, 2004).

### **Strengths and weaknesses**


Overall in terms of research, it is clear that there are currently some important strengths as well as weaknesses in our achievements. On the positive side there are many examples of very high quality work – both academic research and policy research. There are individuals and institutions with research profiles that would compare well with the very best in the rest of the social sciences. Educational research is also widely influential internationally with a strong profile of ISI citations from our best researchers. And we should not forget that we have a very large number of successful research active academics. At the last RAE we had over 1400 staff in departments rated 4 or above – more than the overall figures for some other disciplines.

But there do remain some significant current weaknesses. In terms of bidding for ESRC grants, we are currently 11th out of 17 social science disciplines; given the size of our discipline this is not a measure of success. There are also weaknesses in terms of our recruitment base. While there are clearly advantages in recruiting 'second careerists' into an applied field such as Education, this can only be a benefit if there are appropriate training and development opportunities for staff in order to develop them as researchers; too often this is not the case. Probably as a direct consequence of this fact, we know that the quality of some research is not strong and that the range of methodologies employed is often narrower than it should be; we have a particular weakness in capacity for the use of quantitative methodologies. A final weakness is the growing separation of research in Education from other disciplines – despite the obvious overlap with fields such as Psychology, Sociology, Philosophy and Economics, educational research has far less contact with these disciplines than it did a generation ago.

### **Why are we where we are?**

*'As higher education and science became increasingly important instruments of national economic policy... the relationships between higher education and the state were redefined. Higher education institutions and their members were subject to unprecedented government steerage and scrutiny but also had to locate themselves and compete in various forms of market' (Henkel, 2005)*

In trying to understand the current position of the field of Education in the university sector, I believe that we need to recognise the changing parameters of higher education itself. Increasingly, I would suggest, universities have come



under the influence of neo-liberal policies expressed as the coming together of human capital theory and economic rationalism. As Simon Marginson (2007) has observed, these changes have resulted in a redefined internal economy for universities, in which under-funding drives a 'pseudo-market' in fee incomes, soft budget allocations for special purposes and contested earnings for new enrolments and research grants. Increasingly, therefore, higher education 'managers' (deans and heads of department) find themselves having to compete in internal and external markets in order to maintain the position of their departments. This has major implications for both teaching and research.

In terms of research, for example, as we have already observed, 20 years of the RAE have now established a highly differentiated sector, and the English government has now made it clear that it no longer sees research as an essential ingredient of higher education. As a consequence, England's first 'teaching only' universities were established recently. At the same time, the government has also made an explicit attempt to harness research in the pursuit of global competitiveness – in science, technology and indeed in Education. The government has therefore established a 'new social contract' for research (Demeritt, 2000) – increased funding for all forms of research, including educational research, in return for increased accountability and greater government specification of research topics and methodologies. Education has been drawn into these neo-liberal policies along with every other discipline within the university sector.

Teaching has also become fundamentally influenced by neo-liberal policies. Human capital theory has encouraged the massification of higher education so that as many young people as possible have access to the credentialism that universities offer. However, there has been insufficient funding to cover the costs of the major expansion of the sector. Once again, university managers increasingly have found themselves having to compete for external funding in a highly competitive environment. As we have already noted, the dominant 'market' in terms of teaching for university departments of education in England is TDA-funded forms of teacher education. What has become increasingly clear in recent years is that those institutions that are entirely dependent on TDA funding are particularly vulnerable to government intervention. If all of a department's teaching is funded by the TDA with its current instrumental focus, then this has major consequences for the staff that are recruited, for the professional development opportunities they are offered and for the type of research culture that is developed. Again, as Marginson says: 'The paradox of this new openness to outside funding and competition is a process of 'isomorphic closure' through which universities with diverse histories choose from an increasingly restricted menu of commercial options and strategies' (2007).

Cochran Smith makes a similar point: 'Many people, myself included, have argued for years that good teacher education focuses on an expansive rather than narrow notion of practice'. However, both in the US and in England, university

teacher education has become increasingly instrumentalist as universities, in search of funding, compete to take on the government funding and with it, government agendas. As a result, Cochran Smith argues, the 'ends' question – debates about the purposes of teaching and learning in school – is closed.

By contrast, it is those institutions that have access to alternative sources of teaching funding – those offering non-ITT undergraduate courses, and those with a significant stake in the international postgraduate market – which have a degree of insulation from the demands of the TDA. As a consequence, they are able to use their positional advantage to recruit and support the development of a broader range of staff. This in turn has major implications for the types of research and scholarly culture they are able to develop.

As a result of neo-liberal policies, therefore, the differentiation within the higher education sector has dramatically increased in recent years. A small number of well positioned universities are able to maintain their independence and their commitment to the core traditional values of higher education (the contestability of knowledge), while the majority, in both teaching and research, have found themselves increasingly bound to government agendas.

#### **Where should education be in the knowledge society?**

In the final section of this paper I want to look at three key issues – professional education, knowledge production, and research. In each case I argue that the university sector must be 're-tooled' if it is to meet the needs of contemporary society.


#### **'Re-tooling' for professional education**

However persuasive arguments such as those put forward by Cochran Smith and others might be to those of us in the university sector – that teacher education should be based on an expansive rather than a narrow notion of practice – it would seem to me that such arguments are, in themselves, unlikely to be persuasive to governments. The view that teacher education should be narrow and functionalist, focused primarily on forms of *training* relevant to current government objectives, is now deeply embedded in England. To argue otherwise is too easily written off as no more than special pleading.

If we are to persuade government that it needs to invest in a richer form of teacher education, one that can draw strength from the traditional values of university based education, then it would seem to be more appropriate to address the argument 'from below'. We need to construct an argument about the forms of *school* education needed in contemporary society. What does it mean to prepare young people for 'learning in an uncertain world'? What forms of education are needed in a world where there are increasingly uncertainties in relation to technology, in relation to knowledge and in relation to a society with ever increasing international mobility, diversity of values and cultural conflict? In this sort of world I would argue that, more than ever before, we need to







educate young people to think critically about knowledge and about values, to recognise differences in interpretation, to develop the skills needed to form their own judgments in a rapidly changing world. This in turn has major implications for professional education. If those who teach are to be 'critical educators', then part of their own professional education must be based on the same approach to teaching and learning. Teachers themselves must learn to take 'the contestability of knowledge' as a core value in their own professional learning. And of course, as I have already argued, this is the essential purpose of university-based education.

Such an approach to professional education has major implications for the university sector. It means that we must maintain our commitment to 'the contestability of knowledge' in all our teaching. That in turn means that every lecturer must be a participant in a 'scholarly culture' – able to contribute to the 'conversations at the forefront of their discipline' (Furlong, 1996). And in turn that means universities must support and expect all of their lecturers to undertake some form of personal research and scholarship – the essential ingredient for maintaining that 'scholarly culture'.

However this cannot be an argument about going back to the past where universities remained distant from the world of practice. We do need forms of professional education that are more than instrumental, that debate 'ends' as well as means, but if we have learned anything from the last 20 years of 'the turn to the practical', it is that we also need high quality practical training that is relevant both to the needs of schools and to the nation. The university must be a key contributor to the professional education of the future but not as it was in the past. Far more than before, we need universities and schools to work in forms of 'complementary partnership' (Furlong et al, 2000), where each contributes from its own strengths, its own 'essential purposes' and education of the future but not as it was in the past. Far more than before, we need universities and schools to work in forms of 'complementary partnership' (Furlong et al, 2000), where each contributes from its own strengths its own 'essential purposes', and neither is in the lead. Developing these sorts of partnership is highly challenging for both schools and universities, but is essential, I would argue, if we are to develop forms of professional education and indeed forms of schooling relevant to the 21st Century.

### **'Re-tooling' for new forms of knowledge production**

One of the major challenges facing the university sector overall is that growing numbers of institutions, including educational institutions, are starting to recognise that they can engage in forms of knowledge development on their own - without the involvement of universities at all. In a world that is increasingly technically sophisticated, in a world where a majority of the population is being university educated, innovation and development is increasingly decentralised. 'Mode 2' knowledge production (Gibbons et al, 1994) is increasingly seen by governments and industry as a key contributor to the

further development of industry and civil society more generally. Moreover, the development of Web 2.0 and other forms of social media is now pushing this 'democratisation' of innovation and development forward at a dramatic rate. Increasingly, therefore, the educational system, including schools, is asking hard questions about what the university sector has to contribute to their long term development. Increasingly, encouraged by government, schools and local authorities are starting to take responsibility for their own learning and development. As I said, this has major implications for the whole of the university world, including those of us in Education faculties.


In the past, Education has not responded well in adapting itself to the needs of its own 'industry' – the school system. With the honourable exception of the Action Research movement – exemplified in the work of Stenhouse, Elliott and others – educational research has remained largely separate from the world of schools – defining its own research agendas, and seeing its primary audience as other academics rather than the world of policy and practice itself.

The development of a more complex and more confident educational system poses major challenges here. So much so that I believe that it is time to think again about institutional structures for applied fields such as Education. Conventional university departments may not be the most appropriate organisation form to ensure that universities can continue to provide high quality research-based knowledge that is relevant and accessible to the educational system.

In recent years I have been interested in following the fortunes of the Bristol based 'Futurelab' (<http://www.futurelab.org.uk/>) - an organisation devoted to research and development in the field of new technologies and learning. Futurelab is a not-for-profit organisation, working in partnership with a range of others in order to incubate new ideas, taking them from the lab to the classroom; share hard evidence and practical advice; support the design and use of innovative learning tools; communicate the latest thinking and practice in educational technology; and provide the space for experimentation and the exchange of ideas between the creative, technology and education sectors.

In short, it is involved both in basic and applied research and in knowledge transfer. In order to achieve these ends Futurelab has been set up with a particularly interesting constitution that is to my knowledge unique in the field of Education. It has strong links with Bristol University but is not part of it; it has core government funding with close links with the Department for Children, Schools and Families (DCSF), and it has close links with industry – both hard and software manufacturers and the creative industries. All three groups – university, government and industry - are key partners with Futurelab but not in charge of it. Close links to government mean that research remains close to current policy agendas; close links to the university ensure high quality independent research; close links to industry mean access to the latest technical developments and





opportunities for commercial exploitation. However, all research, even when funded by industry, is widely disseminated; it is all in the public domain.

I am not suggesting that Futurelab is necessarily a model for the future of all or indeed any other research institutes in the field of Education. Nevertheless, its highly successful 10 year history does, for me at least, raise questions as to whether, in a rapidly changing world, we need to re-think the shape and constitution of at least some of our university-based activities. Knowledge transfer does not happen without the right sort of infrastructure and, it would seem to me, we have been significantly unsuccessful in the past in building that infrastructure on our own – that is why schools and other educational institutions are increasingly ‘going it alone’. Maintaining our values for independent critical research and scholarship while also ensuring their relevance is a real challenge in our changing world and this, I would suggest, must encourage us to look quite fundamentally at how we are currently organised.

#### **‘Re-tooling’ for research**

The final area where we need to ‘re-tool’ for the 21st century is in relation to research itself. What I have tried to demonstrate is that it is quite inappropriate to think about ‘research capacity’ as something that is separate from teaching. We don’t simply increase our capacity for high quality research by laying on more and more courses in research methods training – however valuable that might be. If university departments want to have a vibrant research culture then they urgently need to think hard about the type of teaching that they undertake. This means that deans and heads of departments need to insist that all of their teaching programmes are based on ‘the contestability of knowledge’. Whether or not bodies such as the TDA define teacher education in narrowly instrumental terms, it is incumbent on those leading our university departments to remain committed to the core values that make universities distinctive. Not to do so, it seems to me, lays us open to the question – increasingly asked in England – as to whether or not universities are important at all in professional education.

As I have tried to show, maintaining our commitment to critical education is not only important for those we educate, it is also vital for ourselves. Research cultures can only grow in contexts where the commitment to the core values of the university system is taken seriously. In undertaking the analysis for this paper, I was shocked to learn that only 25% of academic staff working in our field have a doctorate. This is something that is our responsibility; this is something that those leading Departments and Faculties of Education need to see as a major priority if we are to continue to maintain our position within higher education. At present it is not something that government itself will prioritise; it is however something that we must prioritise.

As a community, we also need to take responsibility for improving the quality of our research – across the full range of research methods available. A rich and vibrant research culture would have access to a wide range of theories and


methods, and would be able to deploy those confidently in relation to the wide range of educational questions that demand our attention. In my view there is now some evidence that as a community we have begun to take this responsibility. Organisations such as BERA, the ESRC's TLRP programme and the Scottish AERS initiative all provide evidence that our community is, more than in the past, taking the issue of research quality and research training far more seriously. There is still more to be done, but these are moves in the right direction.

But not all of our university departments are in an equal position to contribute to the further development of the field. In a world of highly differentiated institutions, I believe some institutions – the research elite – have particular responsibilities here. Because of their differential funding, they also have the resources to do so. One area where I believe those privileged institutions need to take responsibility is in relation to the maintenance of the foundation disciplines of Education. Current government policy in Education means that it is increasingly difficult for the majority of university Departments of Education to employ specialists in the Psychology, History, Sociology and Philosophy of Education. Yet, often indirectly and in complex ways, these disciplines do remain vitally important for the health of our discipline. If our better off research based university departments do not take responsibility for maintaining these disciplines then they will die – indeed, given the current demographic challenges we face with an aging population, there is an urgent need for those institutions which can to take the renewal of these disciplines as a serious priority.

There is one other issue that I believe is important in the area of research and that is to do with our research agenda. Partly because of the nature of our teaching, and its consequent impact on the staff we recruit, the vast majority of our research is focused on the school population. In recent years, higher education has started to emerge as an important topic for research as well, although in many institutions this takes place as much outside Departments of Education as inside them.

However, if Departments of Education are to have a secure position in the university of the future then they rapidly need to broaden their research agenda. Issues of teaching and learning in the school system are important to study but in the modern world, educational questions are emerging in an ever increasing range of contexts. It is now widely accepted that there are important education questions that need to be asked in relation to: climate change; social equality; the economy; world poverty; and social change – particularly the fact that we have a rapidly aging society. However, it is salutary to reflect that, although there is wide recognition that there are educational dimensions involved in all of these major issues, few governments or other funding bodies would turn to university Departments of Education to contribute to research and advanced teaching in relation to them. This is not surprising, if so much of our research and expertise remains so firmly rooted in the compulsory British school system.





If we are to maintain our position in the university system, I therefore believe that we urgently need to find ways to broaden our research agenda. None of the issues I have defined above are purely educational ones. Developing a research profile in them will therefore demand that we become much more collaborative than we have been in the past. There is some evidence that some bodies, such as the Department for International Development (DfID), do now recognise that in addressing issues in international development, interdisciplinary teams of experts – economists, political scientists, conservationists as well as educationalists – all need to work together. For many of us, this will be highly challenging, but it seems to me it will be essential if we are to move beyond our current position.

### Conclusion

This has been a broad ranging paper in which I have inevitably spent more time raising questions and challenges than in providing answers. However, in conclusion, I would like to emphasise that in thinking about the future of our discipline in the 21st century, in the 'knowledge society', we need to begin by going back to our essential purposes; we need to build our future by recognising what it is we are and what it is we are not. We are not training institutions, certainly in the narrow sense of that term, focused only on instrumental agendas defined by others. Nor are we 'think tanks', focused only on new ideas rather than the careful assessment of evidence. We must recognise that in a future that is already becoming increasingly complex and increasingly unpredictable, new forms of knowledge production demanding more and more interdisciplinary work will be essential. If we are to take our proper place in that world, then we need to ensure that in all of our work – our teaching, our research and our scholarship – we keep what I have called 'the contestability of knowledge' at its heart. This is our 'truth', what we have, in partnership with others – practitioners, policy makers, industry and academics from other disciplines – to contribute to the development of the field of Education in the modern world.

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# SCHOOLS AND TEACHERS IN THE FUTURE: SOME OECD PERSPECTIVES

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## **Introduction**

The purpose of this paper is to give reference to a wide set of related findings and conclusions from recent OECD material. The selected findings and conclusions have not been reworked to make a continuous argument: it is background material in four sections.

First, some of the concepts and results of major OECD projects on teachers are presented, both pre-primary and primary and secondary teachers. Second, there are orientations for policy as the conclusions emerge from these activities. These are identified as immediate possibilities (even if some would take many years to implement) rather than longer-term scenarios. Third, we present some basic patterns and trends from the educational statistics and indicators database and Education at a Glance, including the mix of teaching and non-teaching staffs in different countries and trends in teacher salaries. Fourth, there are extracts from related work which help give shape to the meaning of professionalism. The new international teacher survey, TALIS, is outlined as an annex.

## **The Teacher Career and Concept of Professionalism at School and Pre-school *Teachers Matter*(2005)**

*Some countries use a 'career-based' model of teacher employment which brings its own strengths, weaknesses, and policy implications. In 'career-based' systems, teachers expect to stay long in the public service after early entry and once recruited are allocated to posts according to internal rules (e.g. France, Japan, Korea and Spain). These systems tend to avoid problems of teacher shortages but there are real concerns about how far teacher education is connected to school and student needs, with lack of incentives for continued professional development and of responsiveness to local needs. [Teachers Matter, 2005]*

*Others have 'position-based' systems, with their own strengths and weaknesses. These systems tend to select the 'best' candidate for each position, whether by external recruitment or internal promotion, with wider access to the profession in terms of age or previous career experience, (e.g. Canada, Sweden, Switzerland, and the United Kingdom). The problems typically encountered in these systems are shortages, especially in mathematics and sciences, difficulties in ensuring a core of good teachers beyond age 40, and greater disparities in teacher quality between attractive and unattractive districts/schools. [ibid]*

*Teacher aspirations can be advanced by capitalising on their intrinsic motivations while making appropriate use of extrinsic motivators. Teachers are much more*

motivated by intrinsic rewards to enter the profession but extrinsic factors become more important for practising teachers. The evidence suggests that people enter teaching to help young people to learn and other educational reasons, with material factors and working conditions becoming more important later on. Policies to meet teacher aspirations and enhance their motivation as professionals need to capitalise on the intrinsic factors, make appropriate use of extrinsic motivators, and ensure that teachers have good working conditions so that their motivation is maintained. [ibid and *Education Policy Analysis*, 2005/6]

***Starting Strong (Early Childhood Education and Care)(2006)***

The 'Starting Strong' study used the 2005 UK review of the sector and Nordic approaches to frame the different options for the core professional working in the pre-primary sector. It poses two core models:

*The 'pedagogue model'* is the graduate social pedagogue. This professional is the main worker in early childhood settings in Denmark and other countries, and works also in out-of-school provision, youth work, residential and foster care for children, with the elderly and services for the disabled. Their approach to children is through the concept of pedagogy in which care, upbringing and learning are in equal shares. The early childhood centre is not a junior school but a socio-educational centre.

*The 'new teacher' or 'early childhood specialist' model* is seen to borrow from the Swedish approach after reforms in 2001 when early childhood pedagogues, those specialised in early childhood care and free-time, and primary school teachers were brought into a unified profession. They share the same core initial professional preparation for 18 months followed by a more specialist preparation for their specialist branch. The result is a more integrated location and staffing for pre-school-age children, with the same teams (pre-school, primary, and leisure-time staff) working together daily within the same setting.

A number of weaknesses in Early Childhood Education and Care (ECEC) staff policies emerge from the OECD reviews: low recruitment and pay levels, particularly in child care services; a lack of certification in pre-primary education systems; the feminisation of the workforce; and the failure of pedagogical teams to reflect the diversity of the neighbourhoods they serve. Professional development and the allocation of non-contact time can also be insufficient. Opportunities to participate in professional development and in-service training vary greatly across countries, and between education and child care in the split systems. Consistent with trends in other sectors of employment, workers with the lowest levels of basic training are the most likely to have the least access to in-service training. Currently, there are too few professional development opportunities available in the public sector and in parts of the commercial and private sectors.



## **Orientations for Current and Future Policy**

### ***Teachers Matter (2005)***

Teacher employment and deployment are organised along markedly different lines in different systems: in some this follows a 'career-based' model; in others, a 'position-based' model. The OECD 2005 study proposes the following directions to inform policy development, whichever is the case:

- *Emphasise teacher quality over teacher quantity:* There is substantial research indicating that the quality of teachers and their teaching is the most important factor shaping student outcomes that is open to significant policy influence. Key ingredients in the teacher quality agenda include more attention to the criteria for selection into initial teacher education and employment; and ongoing evaluation throughout the career to identify areas for improvement, recognising and rewarding.
- *Develop teacher profiles to align teacher development and performance with school needs:* Countries need to have clear, concise statements of what teachers are expected to know and be able to do; these need to be embedded throughout the school and teacher education systems. The teacher profiles should encompass strong subject matter knowledge, pedagogical skills, the capacity to work effectively with a wide range of students and colleagues, to contribute to the school and the profession, and the capacity to continue developing.
- *View teacher development as a continuum:* The stages of initial teacher education, induction and professional development need to be well connected to create a coherent learning and development system for teachers – which they tend not to be in most countries. Lifelong learning for teachers implies supporting them more effectively in the early career stages and then in providing incentives and resources for ongoing professional development.
- *Make teacher education and entry more flexible:* Provide more routes into the profession including post-graduate study following an initial qualification in a subject matter field; para-professionals and teacher's aides given opportunities to gain full qualifications; and mid-career changers able to combine reduced teaching loads and concurrent participation in teacher preparation.
- *Transform teaching into a knowledge-rich profession:* Teachers need to be active agents in analysing their own practice in the light of professional standards and their own and their students' learning. Teachers need to engage more actively with new knowledge, and with professional development focused on the evidence base of improved practice.
- *Provide schools with genuine responsibility for teacher personnel management:* The evidence suggests that too often the selection process is dominated by rules about qualifications and seniority that bear little

relationship to the qualifications needed to be an effective teacher. The school is the key agency for student learning – and hence for teacher selection and development – but will need highly-skilled leadership teams and support to carry this out.

### ***Starting Strong (2006)***

A strong link exists between the training and support of staff – including appropriate pay and conditions – and the quality of ECEC services. In order to enhance the status and quality of early childhood work, governments may wish to consider introducing equal working conditions (salaries, benefits and professional development opportunities) for equivalent qualifications across the early childhood and primary education fields. Care should be taken that dead-end jobs are eliminated from early childhood systems, and that in-service training is linked to career progression and to obtaining further qualification. Collective agreements between public authorities and staff unions would seem a helpful approach to addressing the current weaknesses of employment conditions and professionalisation in ECEC.


Educators are the key to successful early childhood programmes. The work of early childhood professional staff is complex, and sound training is required. Whatever the qualification provided, professional training should include knowledge of child development and learning processes and an awareness of the rights and potentialities of young children. Staff morale benefits greatly from consistent support and engagement in participatory approaches to quality development. The practice of team documentation seems to be particularly suited to bringing research and reflective practice into early childhood services.

### ***Laying the Foundations for Lifelong Learning: An OECD Survey of Upper Secondary Schools (2004)***

This report, based on a 2001 international survey of schools at upper secondary level, provides suggestions about the way ahead in line with parallel OECD activities, including Schooling for Tomorrow. It suggests that “renewing teacher professionalism together with ICT in schooling” are key elements for ‘learning organisations’. It proposes:

- *The reconsideration of teacher employment and working time regulations* in the light of demands for new teaching and learning skills and increased preparation time for the efficient use of digital technology. A similar reconsideration of student learning time is also needed.
- *Policies fostering school-based staff development* including activities in which teachers share their knowledge and experiences and co-operate in development projects;
- *Policies promoting networking* between teaching professionals and co-operation between other ‘learning organisations’ including private companies;
- Move towards a *higher level of school autonomy in human resource management* and in the allocation of funds for ICT development.





**Background Statistical Information on School Investments and Teacher Resources**  
***Very wide differences between countries in balance of educational personnel counted as 'teaching' and 'non-teaching' staff:*** Among the ten OECD countries for which data are available for each category of personnel employed in education, those not classified as teachers (instructional personnel) represent on average one-third of the total staff in primary and secondary schools. In three of these countries, these non-teaching staff make up between 30 and 40% of the total. The proportion is highest at over 40% in the Czech Republic and France and is lowest in New Zealand at 13%. Compared with the number of students enrolled in primary and secondary schools, non-teaching staff represent more than 40 persons per 1 000 students in the Czech Republic, France, Iceland, Italy and the United States. (*Education at a Glance, 2005*)

These differences reflect the numbers of staff that countries employ in non-teaching capacities, e.g. principals without teaching responsibilities, guidance counsellors, school nurses, librarians, researchers without teaching responsibilities, bus drivers, janitors and maintenance workers, and also administrative and management personnel both inside and outside the school. In Hungary, Iceland, Italy and the United States, maintenance and operations personnel working in primary and secondary schools make up more than 20 persons per 1,000 students enrolled. Administrative personnel are between 8 and 11 per 1,000 students enrolled in primary and secondary schools in Finland, Italy and the United States and more than 18 persons per 1 000 students in the Czech Republic, whereas the staff employed in school and higher level management exceed six persons per 1,000 students in the Czech Republic, France, Iceland and the Slovak Republic, and ten persons in Norway. Those employed to provide professional support for students are relatively numerous in France (more than 24 persons per 1,000 students enrolled in primary and secondary schools) and are also relatively numerous, if to a lesser extent, in the United States (about 9 persons per 1,000 students enrolled in both primary and secondary schools). [ibid]

***Classes are larger in lower secondary compared with in primary schools (on average nearly three students more per class), alongside marked differences between countries with big and small classes:*** Lower secondary average class sizes of 30 or more in Korea, Japan, Mexico, Brazil, Chile, and Israel contrast sharply with Denmark, Iceland, Luxembourg, Switzerland and the Russian Federation where both primary and lower secondary classes are, on average, at or below 20 students per class. Primary school classes (21.5 per class OECD average) are generally smaller than in lower secondary schools (24.1 per class). Switzerland and the United Kingdom are minor exceptions to the "primary school classes are smaller" finding. [EAG 2007, Chapter D]

***The investments made in teachers, as indicated by teacher salary levels, have gone up in real terms over the past decade in most countries:*** Teachers' salaries have risen in real terms in both primary and secondary education in nearly all the countries for which OECD has trends data (comparing 1996 and 2005 in 20



systems covering 18 countries). The biggest increases – largely doubling - have taken place in Hungary. Starting salaries have risen faster than mid-career or top-of-the-scale levels in Australia, Denmark, England, Finland and Scotland, compared with higher growth in remunerations for those with at least 15 years experience in Austria, Japan, the Netherlands, New Zealand and Portugal. Largely static or even falling salary levels are only noted for secondary teachers in French Belgium, primary teachers after 15 years experience in Switzerland, and primary and upper-secondary teachers in Spain, (though other countries not supplying data may also fit this description). [EAG 2007, Chapter D]

***It is necessary to reach thresholds of investment in ICTs and in the skills and educational organisation to use them so as to reap educational benefits:*** only in a certain relatively small number of countries have the thresholds of equipment and investment begun to be reached - [at time of writing some of the Nordic states, Australia, Hungary, Korea, New Zealand, the United Kingdom, and the United States] - to allow most students to gain access to the technology and to use it frequently. Data from PISA 2003 shows that even in countries with among the highest levels of investment in ICT in schools, often it is not used for much of the time. In the systems which have reached the thresholds, investment in equipment has often been complemented by extensive teacher training, and patterns of computer use by young people, both within the school and outside it, are more often for clearly educational and learning purposes. [Education Policy Analysis, 2004 Edition]

#### **Teacher and Workforce Policy geared to Teaching and Learning? Further Related OECD Studies**

##### ***Formative Assessment – Improving Learning in Secondary Classrooms (2005)***

Assessment for learning may be viewed as an essential element of more personalised approaches to education. It refers to assessment of student progress that is an ongoing part of everyday teaching, rather than a special event. Formative assessment is designed to provide teachers and students with critical information about learning needs, help students to assess their progress towards learning goals, and guide teachers to vary their teaching according to needs and goals. Like other approaches which place learning at the centre – such as mastery learning or intensive tutoring – they have been associated with significant gains in achievement.

Such approaches address equity head on through the individualisation of teaching and learning strategies and through the continual identification of and responses to students who are experiencing difficulties. They are explicitly about developing cultures of learning in schools and classrooms. It was revealing how difficult it was for the participating countries<sup>1</sup> to find cases which matched the study criteria for selection (which ought to have simple were we just asking for examples of “good teaching”). These criteria were:

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1 Canada, Denmark, England, Finland, Italy, New Zealand, Queensland Australia, and Scotland.

- To focus on formative assessments used in deliberate instructional strategies, illustrating examples of coordinated teaching and assessment approaches responding to student learning styles, skills, interests, and motivations.
- To be from the lower secondary level and, to the extent possible, cases to provide evidence that learning was significantly enhanced by the approach taken.
- To involve “whole-school” approaches – to avoid cases which were limited to one or two classrooms only and to be embedded in a process or broader initiative that could offer lessons for ‘scaling-up’; at the least the cases examined would need to offer lessons that would be of interest to the majority of mainstream schools.

The difficulty encountered in finding cases that met these criteria even in systems which were sufficiently interested to take part in the study, having appointed a national expert with insider knowledge to accompany the external expertise, suggests that assessment for learning is a far from common, let alone universal, practice at the lower-secondary level at least.

#### ***Demand-sensitive Schooling? Evidence and Issues (2006)***

The formative assessment study deliberately focused on the lower secondary level, on the basis of the argument that it tends to be more difficult to adopt holistic, learner-oriented approaches at secondary compared with primary level. This 2006 study identified clear differences in the ways in which primary and secondary schooling are judged by both students and parents. Parental involvement in school life falls between the primary and secondary stages across countries as different as Finland, Hungary, England and Spain. Older students are more critical about schooling than younger ones, with primary school children more satisfied than students in secondary schools. In all the countries covered, students in the higher educational tracks tend to be more satisfied than students in vocational education. Enjoyment of learning and engagement in schools decreases with age, and serious disaffection is most marked among secondary students.

Are these patterns only to be expected and explicable in terms of such factors as the onset of puberty or the greater distance from home of many secondary schools compared with the local community primary schools? Do the growing stakes of educational success as studies advance and the beckoning choices regarding higher education and the labour market necessarily reduce enjoyment? Or might it be that too often secondary education is insufficiently ‘demand-sensitive’ and instead excessively dominated by the requirements of administrators and teachers? Do secondary teachers in too many OECD countries adopt traditional approaches to teaching and the understanding of pedagogy – perhaps supported by many parents who favour the familiar ways over the innovative ones?

### ***Personalising Education (2006)***

The point about the strong connection between personalised learning and workforce reform was made forcefully by the then UK Schools Standards Minister, David Miliband, in his contribution to the volume on Personalising Education. He maintained that it “demands a radical approach to school organisation. It means the starting point for class organisation is always student progress, with opportunities for in-depth, intensive teaching and learning, combined with flexible deployment of support staff. *Workforce reform is a key factor.* The real professionalism of teachers can best be developed when they have a range of adults working at their direction to meet diverse student needs. It also means guaranteed standards for on-site services, such as catering and social areas.” [emphasis added]

Sanna Jarvela’s contribution to the OECD volume on personalisation summarises some key findings of research into the nature of learning and aims for education, which the personalisation agenda addresses:

- Collaborative efforts and networked forms of expertise are increasingly needed in the future knowledge society;
- Students need to be able to develop their personal learning needs and individual expertise in the areas which they either feel incompetent or they want to increase their existing expertise;
- Curiosity and creativity are increasingly essential;
- Learning is developed through explicit learning strategies, learning to learn skills, technological capacities for individual and social learning activities, and through learning communities with collaborative learning models;
- Learning needs to be sensitive to contextual conditions, different values and cultural features;
- When technology is seen as an intelligent tool for supporting individual learning, as well as collaborative learning among different individuals, there are multiple ways to expand potential in every student.

The need to bring the learning sciences much more centrally to bear on the design of learning environments and policies is one of the key inspirations behind the new OECD Alternative Models of Learning project, which sought approval from the CERl Governing Board in November 2007. This project aims to offer the examples and evidence on which a more far-reaching reform agenda for schooling can be grounded.

### ***Innovation in the Knowledge Economy: Implications for Education and Learning (2004)***

OECD work on knowledge management has identified four key ‘pumps of innovation’ to be found in different types of organisation and sectors of the economy. The thesis of this analysis is that education (teachers and schools, especially those in traditional systems), are not well equipped to use these different ‘pumps’ to innovate to practice.



- The 'science-based' innovation pump: education has not traditionally made enough direct use of research knowledge, and there is often cultural resistance to doing so. This is increasingly being targeted in reform.
- The 'horizontally-organised' innovation pump: there are obvious benefits in terms of teachers pooling their knowledge through networks, but incentives to do so remain underdeveloped. There is need to tighten the 'loose coupling' between the individual units – single teachers, individual classrooms, individual schools as units - that so characterises school systems.
- The 'modular structures' pump: This is about building a complex process or system from smaller subsystems that can be designed independently but function together. Education is accustomed to working in modules, but much that takes place has schools or teachers operating separately from each other.
- The 'information and communication technologies' pump: There is a powerful potential for ICT to transform education, but its use in schools remains underdeveloped, partly because the main modus operandi of school administration and instruction are resistant to change.

#### ***Improving School Leadership (2008)***

The OECD's ongoing programme on Improving School Leadership is producing a series of substantial national monographs but will not have a synthesis report available until early 2008. However it is possible to outline why the OECD is working on leadership, some initial pointers for policy which have already been identified, and keynote conclusions from an earlier leadership seminar.

School leadership is important for educational policy, as the starting point for the OECD study, because it provides the interface between educational policy making and the translation of policies into a reality for teachers and students. While governments can provide policy directions for schools and educational systems, it is ultimately the engagement and actions of school leaders and their teaching staff that will bring about profound changes for students. There is substantive empirical evidence that the ways in which school leaders organise their schools and engage with their staff have important effects on teaching and learning. By shaping the environment and climate in which teaching and learning occur, school leaders can play a significant role in influencing the processes going on inside the classrooms.

#### ***Redefining the roles and responsibilities of school leaders***

The roles and responsibilities of school leadership have changed, but in many countries the definitions, standards and policy frameworks for school leadership have not kept pace with these developments. The work of school leaders should be professionalized in the following ways:

- Acknowledge and define new roles and responsibilities that result from decentralization and autonomy, accountability for results, and increased emphasis on teaching and learning.

- Strike a balance between administration and management, and leadership for learning.
- Develop leadership frameworks and standards focused on leadership for learning.
- Distribute leadership.

#### *Developing the knowledge and skills of school leadership*

Evidence reveals that leadership training and development contributes to improving leaders' effectiveness as well as their personal and professional satisfaction. Leadership development strategies need to be prioritised in education policy. There are a number of ways in which this can be done:

- Target different stages of school leadership
- Take a proactive approach in selection of potential candidates
- Adapt content to practice
- Ensure coherence of provision.

#### *Making school leadership an attractive career*

The school leadership profession needs to be competitive to attract and retain motivated individuals. Policies aimed at attracting and supporting effective school leaders need to focus on effective selection processes, salaries and rewards, as well as employment conditions and career perspectives.


- Plan for leadership succession
- Consider broadening eligibility criteria
- Professionalise recruitment practices
- Provide adequate remuneration
- Provide opportunities for career development.

#### *Working beyond the school*

School leaders have to work with a set of varied stakeholders who participate at different levels in school decision making such as school boards or local and regional policy makers. They also can collaborate with other schools to improve alignment of policy and practice and to rationalize supply and resources. These need to be accounted for in leadership practice:

- Clarify the role and contribution of school boards in leadership for school improvement.
- School co-operation and collaboration can work when it is clearly defined.
- Collaboration can go beyond the education sector.

Also the conclusions of Richard Elmore, Harvard University, in his keynote address to the project's July 2006 leadership conference, are relevant to this compilation, even if they are not an 'OECD position': "The process of improvement, like all developmental processes, is neither continuous nor linear. It looks more like a process of punctuated equilibrium, periods of significant increases in performance, followed by periods of consolidation. Leadership, in this context, is primarily about (a) managing the conditions under which people learn new



practices; (b) creating organizations that are supportive, coherent environments for successful practice; and (c) developing the leadership skills and practices of others.”

Leadership of improvement, if it is to result in the improvement of quality and performance at scale, must be conceived as a practice – a collection of patterned actions, based on a body of knowledge, skill, and habits of mind that can be objectively defined, taught, and learned—rather than a set of personal attributes. As improvement advances, leadership refracts; it ceases to follow the lines of positional authority and begins to follow the distribution of knowledge and skill in the organization. The single greatest weakness of accountability policy as it is presently constructed is its failure to invest adequately in the human knowledge and skill required to form strong practices of improvement.

From a policy perspective, the agenda for developing leadership is primarily an agenda of creating the institutional structures to support the development of the knowledge and ‘skill to lead’ improvement, and the social capital that connects individuals’ knowledge and skill in ways that contribute to the development of practices of improvement. The most effective investments (a) will be close the ground – that is, in networks and institutional arrangements that connect people in classrooms and schools with the knowledge required to their work, and with other practitioners faced with similar problems of practice; (b) will create human resource systems that develop the knowledge and skill of educators from the earliest stages of entry to the profession to the latest, rather than focusing on a single role or a single career stage.

The role of public policy in this domain has to focus on the ‘collective good’ dimensions of the improvement of practice – that is, the dimensions of the problem that cannot be addressed by individuals and schools working alone in their own spheres. More specifically, public policy has to create the legal and institutional framework that requires the education profession to say what its practice is; to create the infrastructure by which knowledge about content and pedagogy will be made available to practitioners, and to create the career structure required to develop human talent for leadership roles.”

### OECD References

*Education at a Glance*, 2007 edition

*Starting Strong II: Early Childhood Education and Care*, 2006

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*Education Policy Analysis*, 2004 Edition (Chapter on ICT) 2005.

*Education at a Glance*, 2005 Edition

*Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, 2005

*Formative Assessment: Improving Learning in Secondary Classrooms*, 2005.

*Innovation in the Knowledge Economy: Implications for Education and Learning*, 2004.

*Laying the Foundations for Lifelong Learning: An OECD Survey of Upper Secondary Schools*, 2004.

The national reports on Improving School Leadership can be found on the OECD website: [http://www.oecd.org/document/53/0,3343,en\\_2649\\_37455\\_38529205\\_1\\_1\\_1\\_37455,00.html](http://www.oecd.org/document/53/0,3343,en_2649_37455_38529205_1_1_1_37455,00.html)

The keynote paper from the London July 2006 conference on Improving School Leadership is Richard F. Elmore, "Leadership as the Practice of Improvement".

## **ANNEX**

### **TALIS, the new OECD Teaching and Learning International Survey**

*What is TALIS?* It is the first international survey where the major focus is on the learning environment and the working conditions of teachers in schools. The survey is being conducted in 23 countries across four continents.

*The target population of TALIS:* It surveys teachers in lower secondary education and the principals of the schools in which they work. Separate questionnaires for teachers and principals have been developed by an international expert group and have been discussed throughout the development with representatives from each country and with teachers' representatives bodies, in particular the Trade Union Advisory Council (TUAC) at the OECD. Within the participating countries, schools as well as teachers within the schools are randomly selected to take part in TALIS. For each country - except for the very small ones - some 200 schools and 20 teachers in each of these schools are sampled.

*Issues to be examined in TALIS:* The survey focuses on the following policy issues:

- The appraisal of teachers' work in schools and the form and nature of the feedback they receive, as well as the use of outcomes from these processes to reward and develop teachers
- How different forms of teacher appraisal influence teaching practices and beliefs



- How school-level policies and practices, including of the school leadership, shape the learning environment in schools and impact on the work of teachers
- The creation and support of effective school leadership in an era of accountability and devolution of educational authorities
- The extent to which recent trends in school leadership and management are having an impact on teachers and education systems
- The profiles of countries with regard to teaching practices, activities, beliefs and attitudes, and variation in these according to teacher background characteristics.

*Countries participating in TALIS:* Twenty three countries will take part in TALIS: Austria, Australia, Belgium (Flemish Community), Brazil, Czech Republic, Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Republic of Korea, Lithuania, Malta, Malaysia, Netherlands, Norway, Poland, Portugal, Spain, Slovak Republic, Slovenia and Turkey. Other countries may join the survey at a later stage.

#### **Timelines**

**Pilot study conducted**  
**Conduct field trial**

September/October 2006  
March/April 2007

#### **Main Study**

***Southern hemisphere countries***

October/November 2007

***Northern hemisphere countries***

February/March 2008

***Release of initial report***

February/March 2009

## BETTER TEACHERS, BETTER SCHOOLS IN A KNOWLEDGE SOCIETY?

**Mr Eamon Stack,**

**Chief Inspector, Department of Education and Science, Dublin**

### **Introduction**

In this paper, I pose the question – *Better Teachers, Better Schools in a Knowledge Society?* – because nothing short of high-quality teaching in schools, structured to meet the needs of today's learners, will raise educational attainment to the level required for effective participation in the knowledge society.


### **The Knowledge Society: challenges and opportunities**

The knowledge society embraces a complete set of changing and rapidly developing circumstances. These include economic development, both national and international, industrial modernisation and, of course, technological changes as they impact on governments, business and industry, households and the individual. Irish society is experiencing increased cultural diversity and changing family structures, and there is less evidence of the traditional supports that society relied upon in the past. In addition, there will be significant expansion in the schooling system, where it is projected that up to 100,000 additional children will enter the education system at primary level in the next seven years. These changes present both a challenge and an opportunity, not just for government or a particular department, but for all of society. While much is now spoken about the knowledge society, the concept of expansion and exploitation of knowledge is not new. We only have to recall from our history some of the great inventors, scientists, educators, artists and others who have been pushing out the boundaries of knowledge over the centuries. What is different today is that the discovery and creation of knowledge is now universal: it is not for the few, it is for everybody.

Moreover, the rapid expansion of the knowledge society is directly linked to advances in information and communication technologies. In order to make progress everybody needs skills that heretofore were not encompassed within a traditional understanding of education and schooling. Knowledge is now a strategic resource and it is incumbent on all of us who have responsibility for education policy and its implementation at every level to ensure that the education system is oriented towards meeting the needs of learners into the future.

There is an expectation in most countries that schools will help society to adapt to the changes and challenges of the 21st century. The nature of change impacting on schools can be summarised in the following quotation from the 2005 OECD study, *Teachers Matter*:





*The demands on schools and teachers are becoming more complex. Society now expects schools to deal effectively with different languages and student backgrounds, to be sensitive to culture and gender issues, to promote tolerance and social cohesion, to respond effectively to disadvantaged students and students with learning or behavioural problems, to use new technologies, and to keep pace with rapidly developing fields of knowledge and approaches to student assessment. Teachers need to be capable of preparing students for a society and an economy in which they will be expected to be self-directed learners, able and motivated to keep learning over a lifetime. (OECD, p.97)*

### **Education for tomorrow in a knowledge society**

The central message here is that change is now so rapid that we are preparing students for a future that we cannot easily predict. Wider societal changes also impact directly on the education environment. For example, changing lifestyles, youth culture and influences impinge on classroom life and the role of the teacher. In dealing with such uncertainty and change, the traditional role of the teacher mainly as transmitter of knowledge will no longer be sufficient. Greater balance is now being sought between the content and the process of learning, with teachers acting as tutors, guides, and facilitators of the learning process, while still continuing to teach subject matter.

Teachers have always been at the cutting edge in dealing with social, cultural and economic changes as they impact on young people, and in recent years have been instrumental in instigating many changes in our schools. The key difference now is that the pace of the changes is not measured in quarter centuries or decades but almost on a year-on-year basis. The pace of change requires that schools and teachers must be in a position to respond appropriately to changing needs and circumstances: to do so, teachers must possess a particular set of skills and competences.

### **A new paradigm for teaching and learning in the future**

In any education system, the objectives for student learning are paramount. What skills and qualities do we want our students to develop? A useful place to start is with the eight key competences developed at EU level, The European Framework of Competences for Lifelong Learning, which are considered essential for the personal fulfillment of individuals and for participation as active citizens in society. These are:

- Communication in the mother tongue
- Communication in foreign languages
- Mathematical competence and basic competences in science and technology
- Digital competence
- Learning to learn
- Social and civic competences
- Sense of initiative and entrepreneurship
- Cultural awareness and expression.

Even within this framework, the traditional competences of language, literacy and numeracy continue to be central, while a competence in ICTs is now regarded as fundamental. Learning to learn is seen as an overarching competence which supports all learning activities. In addition, other transversal or generic competences, which apply to many areas of life, are considered vital in the knowledge society: these include social and civic skills, initiative-taking and cultural awareness and expression. The transversal nature of these key competences demonstrates that there is a need for teaching to become more collaborative and that approaches to teaching should no longer remain just within the narrow confines of traditional subjects. If schools are to provide for the development of these key competences, the traditional models of teaching and the nature and practices of schooling will need review and change. Transversal competences such as digital knowledge and skills, learning to learn, social and civic skills and initiative-taking are not subject-specific, and so their inclusion, within the context of initial teacher education and continuing professional development, presents a challenge.


While many would say that the idea of a good teacher does not change, I think that it is clear that the emphasis has to change. When you look at those competences you see two sets of relationships – one relationship is the teacher with the subject and the other relationship is the teacher and the student. I think the balance in these relationships is shifting from the subject matter to the student. I would suggest that the teacher-student relationship is becoming more central and may even take precedence, in some situations, over coverage of course.

### **The strategic context for empowering the teaching profession**

At a national level in Ireland there is, of course, the political and strategic modernisation agenda as outlined in *Towards 2016* and the *National Development Plan*. Both of these documents put forward specific targets for change and development in relation to improving educational attainment, promoting inclusion, building mutual respect and collaboration in a diverse society and promoting modern working arrangements. So in a way the stage is set and it is now up to us as educators to play our part, notwithstanding the challenges posed.

The recently published *Codes of Professional Conduct for Teachers* by the Teaching Council encompass many of the concepts of the extended professional teacher and paint a clear new challenge for teaching: these include a commitment to student-centred learning, professional development, collegiality and collaboration. When read carefully you will see that the Codes point the way, and give clarity to what is expected of the modern day teacher in contemporary Ireland. In the foreword to the Codes it says that they: “make explicit the essential values which underpin the profession of teaching in Ireland. Core values are outlined which span many aspects of teaching from the quality of education, to teachers’ commitment, to holistic development, and to caring for students. The





listing of values suggests the importance of a reflective, learning teacher within a dynamic, vibrant teaching profession. They suggest also the importance of teachers pausing to ask about the value of education and of their work and about the role of professional educators in preparing young people for life. They underline the centrality and moral basis of teachers' work."

I congratulate the Teaching Council on the publication of these Codes. It is significant that they have been developed for teachers by teachers in consultation with the wider education community in Ireland. The challenge now is for all teachers, schools, teacher educators, inspectors and others to embrace the Codes. They can be used by teachers as a standard against which to measure themselves and, of course, they are also the Codes by which teachers will be measured by others.

#### **Implications for pedagogy**

I just want to take one example mentioned in the Codes which I believe is particularly relevant to the matter under consideration in this paper. That is the area of student-centred learning. I think the expectation here is that reflective practitioners will be able to facilitate learning in a myriad of ways. Specifically, there is a requirement for clear and stimulating lesson presentation, for an emphasis on cooperative learning and, indeed, on higher order thinking skills, collaborative problem solving and the use of assessment for learning. Critically, it includes differentiated programme content and individualized learning as well as the assessment and monitoring of pupil progress.

We must also recognise that the influence of the teacher is not confined to in-classroom activity. Teaching takes place in schools that function as professional learning organisations. School improvement is built on the contributions of teachers working together as reflective practitioners. The instructional leadership of the principal connects all the professionals in the school by sharing best practice, by collaborating in the delivery of the school's objectives, by sharing data on student progress in the broadest sense, by meeting the needs of the individual learner, and now also on the agenda is self-evaluation at both classroom and school level.

#### **The contribution of inspection to school improvement**

Inspection also has a role in developing better teachers and better schools. Since the passing of the Education Act 1998, very significant change has taken place in the organisation and management of the inspectorate. Key features include a clear focus on the core business of school and system evaluation; the publication of reports on evaluation activities; and the deployment of a number of inspectors to assist in the policy development process at Department level. There are two significant dimensions to the current work of the inspectorate, namely evidence-based reporting and the communication of findings to a variety of audiences, with a view to impacting on change.

In terms of specific inspection activities, Whole School Evaluation (WSE) at both primary and post-primary levels and significantly expanded subject inspections at second level have been rolled out. In the current school year more than 3,300 inspections will be conducted. Over 1,000 of these are either WSEs or subject inspections and the remainder relate to the over 2,300 new primary teachers who are listed for probation. So you may well ask if all of this activity is making any difference in assisting our system to have better teachers and better schools.


I have been very heartened by the responses I am getting from principals, boards of management, and management bodies generally, in relation to the positive impact Whole School Evaluation is having. We are getting feedback that says that our inspections are indeed contributing to improvement both at the level of the teacher in the classroom and also at the level of the school – in the words of one Principal, they are “providing a platform for improvement”. We are being told, for example, that for the first time many boards of management in primary schools are discussing teaching and learning and the quality of education provision for students, something that did not happen before.

I believe that this increased level of evaluative activity is also encouraging schools to begin to engage in meaningful self-evaluation in accordance with the same criteria as are used for external evaluation. In promoting school improvement, the inspectorate provides an external perspective which makes a school more accountable to its students, their parents and to the wider public. The models of evaluation we use are based on sound research from the field of school improvement, take account of school context factors, and are concerned primarily with the quality of learning outcomes.

We now provide a range of inspection models, developed in consultation with the stakeholders, which can be adjusted to suit changing contexts and emerging issues. For example, within the programme of WSEs at primary level this year, the inspectorate is conducting forty specialised evaluations focusing on science, and a further forty focusing on social, personal and health education. The findings from these inspections will be collated in a major report on quality and standards in these specific subject areas and will be published.

In providing the external perspective to schools, the inspectorate itself must be well prepared, its task well-defined and the process well-researched and transparent. Delivering an inspection programme demands the highest professional standards. There are a number of points to be made in that context. Inspectors receive significant and continuing professional development on all aspects of their evaluative work. We have established a well-developed research function within our Evaluation Support and Research Unit. Most importantly, we have published professional standards in a *Professional Code of Practice on Evaluation and Reporting for the Inspectorate*, and a review mechanism which incorporates an independent external element.





As an illustration of the scale of the work now underway, 1,226 school inspection reports have been published on the Department's website since June 2006. Of these inspections, only one has been the subject of a formal review. The inspectorate now has an extensive range of publications in addition to school inspection reports. In fact we have published over forty reports in the last five years dealing with a range of issues including evaluations of curriculum implementation, subjects, programmes, special classes, schools and newly qualified teachers. For example, earlier this year, we published the *Inclusion of Students with Special Educational Needs Post - Primary Guidelines* and are about to publish an in-depth report on ICT in primary and post primary schools, very shortly. We will also publish two reports on the teaching of Irish at Junior Cycle and the teaching of Irish in primary schools. All of these publications are based on our evaluative experience in schools and our engagement with teachers and principals.

At a policy level, composite reports and targeted feedback meetings between the inspectorate and administration sections of the Department are two ways in which good practice in schools, and indeed the challenges that schools face, are now communicated within the Department. With the growth in the range of inspection activities in the last number of years, the impact of the policy advice which has emerged from inspections is gaining significant ground. Just to give you two examples: the inspectorate evaluation and report on *Literacy and Numeracy in Disadvantaged Schools* (LANDS) was influential in shaping the Department's DEIS (Delivering Equality of Opportunity in Schools) policy. More recently, the soon to be published ICT in Schools Report is feeding directly into informing the Department's policy on ICTs which is also being finalised at this time.

I expect that the composite reports in various subject areas will be of equal assistance to teacher educators: be that during initial teacher education or continuing professional development activities.

#### **School self-evaluation: the new frontier in school improvement**

One of the Inspectorate's objectives for 2008 and beyond is to actively promote the use of *Looking at Our School, An aid to self-evaluation in primary schools* (LAOS), published in 2003, and the corresponding post primary edition. This we are doing in support of the commitment in *Towards 2016* which makes specific reference to the use of LAOS by schools and teachers in conducting self-evaluation of performance in teaching and learning within the context of the school development plan. It is our intention that in the course of future Whole School Evaluations, inspectors will report on the extent to which schools and teachers are using these guidelines for school self-evaluation. I think we would all agree that improvement in quality in the system has to be rooted in the individual practice of teachers within schools. While school planning has helped to make an important beginning in this area, I believe that now we need to



move to having robust self-evaluation that looks at the quality of learning outcomes and other issues in each school.

The inspectorate wants to support this work, by first of all sharing our expertise and tools of evaluation with schools. *Looking at our School* is designed as an aid to self-evaluation and we intend to provide further supports for self-review and evaluation in the future. We also want to encourage schools, teachers and teacher educators to use the findings of inspectorate reports to inform practice, and we very much see robust school self-evaluation, published by the school, as complementary to external evaluation. Of course, as school self-evaluation develops and schools publish their own self-evaluation reports, we will adapt the model of external evaluation. The form of WSE conducted in a school that is engaged in effective school self-review and evaluation should be different to that conducted in a school where the process is less developed.

#### **Where external meets internal evaluation**


I believe, therefore, that the goals for teachers, for schools and for the inspectorate in delivering better teaching in better schools include the development of school self-review and evaluation that is strongly evidence based. This would make a very significant contribution to improving the quality of teaching and learning in schools. To paraphrase Lawrence Stenhouse, it is not enough that the teacher's work should be studied; they need to study it themselves. In that context, I think external inspection should be able to challenge, in a positive way, internal self-review and evaluation, which in turn should be able to challenge external inspection. In that scenario, a new architecture for both processes will be required in the future.

Schools and teachers in Ireland are already well-advanced in developing their systems to manage change. Most schools have been involved in school development planning in recent years: they are beginning to engage in processes of self-evaluation; they are responding to external evaluation by amending their practices; and they are participating in a range of professional development activities. As a result of this wide-ranging engagement, and a greater emphasis than heretofore on the interpretation of school related data, I believe teachers are becoming more sophisticated at identifying and addressing the next steps in their development. To assist them in carrying out these tasks, high-quality relevant teacher education programmes are required that will lay the foundation for a career in teaching, that will support teachers in the early stages of their work and that will facilitate them in regularly updating or learning new skills which will consequently sustain them in meeting the challenges of a career in teaching.

#### **The policy context for teacher education**

It is now recognised by all that the ongoing changing educational context requires a review of the content and processes of current teacher education programmes. A restructuring of initial teacher education, in particular, will help





to ensure that the system is able to respond to emerging needs, and new teachers are prepared for the changing reality of teaching in Irish classrooms. A programme of induction as well as high quality continuing professional development is also essential to ensure that serving teachers are able to update their skills in the personal, professional and pedagogic domains. Policy review and change are required at all stages of the teacher education continuum in order to link teacher education with improved teaching and learning outcomes for students in line with the development of the knowledge society. Co-ordination between the various strands of teacher education is required. Equally, programmes of teacher education need to be responsive to the changing needs of teachers who work in a variety of contexts. You might well ask, how will this happen and how is policy determined in this area?

Before the establishment of the Teaching Council, policy proposals in relation to teacher education were made mainly at Department level. Now, a key role rests with the Teaching Council in advising the Minister. In this context, Section 38 of the Teaching Council Act 2001 requires the Council to:

- review the standards of knowledge, skill and competence required for the practice of teaching;
- review the standards of education and training appropriate to a person entering a programme of teacher education and training;
- review and accredit the programmes of teacher education and training provided by institutions of higher education and training in the State, and to advise the Minister and, as it considers appropriate, the institutions concerned.

In carrying out this remit, the Council is obliged to consult with the Minister and such institutions of higher education and training in the State as it considers appropriate for the purpose of the performance of these functions.

Ultimately the Minister makes the final decisions as she has overall responsibility for the education system. So while the Minister is the final decision maker in relation to policy in this area, the Teaching Council plays a pivotal role in the process. In reality, the Council will engage and bring to a conclusion the policy formulation process relating to teacher education and standards, in consultation with the education partners represented on the Council and appropriate institutions of higher education, for deliberation by the Minister. The Teaching Council is already experienced in leading such consultative processes as evidenced by its work in developing the *Codes of Professional Conduct for Teachers*.

Over the past five years, progress has been made in identifying the principles which should underpin teacher education in the future. National and international reviews of teacher education, OECD studies and EU policy have led to an emerging consensus on the broad framework within which Ireland's teacher education policies should now be defined. Significant work has also taken place within the Department and this will now become part of its dialogue with the Teaching Council as it begins its work under Section 38 of the Act.

Within the Department of Education and Science, the contact section for the Teaching Council is the Teacher Education Section. TES was formed in 2003 to reflect the Department's view of teacher education as a continuum from initial teacher education to induction and continuing professional development: the rationale for this administrative change was to ensure cohesion in teacher education policy and practice in a way that would best support teachers and school leaders into the 21st Century. The inspectorate provides advice, as appropriate, to the TES.

### **Challenges ahead for the Teaching Council**

I must say that I look forward to the work now ahead and the Teaching Council's work in bringing forward concrete and well planned proposals for teacher education policy. I echo the Minister's view that the reorientation of initial teacher education is a priority and, in this regard, I quote Dr Tom Kellaghan, who posed the following as the challenge for initial teacher education, the first stage on the continuum:

*How to provide the knowledge and skills that teachers need to begin teaching and start them on a course of development that will lead to self-sustaining generative change and development of the capacity for self-regulation and independence which ultimately will contribute to a high quality of learning experience for their pupils. (Kellaghan, p16).*

Having prioritised the initiation of change in initial teacher education, it will be necessary to consider in greater detail the future of induction and continuing professional development programmes. The pilot project on teacher induction has been very successful and continues to explore models which will best take account of the nature, size and distribution of schools in Ireland. Regarding CPD, considerable developments have taken place since 1994. Increasingly, however, the fragmented nature of current structures has been the subject of comment. A revised structure is necessary, which will take account of individual schools' increasing focus on defining professional development needs arising from their process of self-evaluation and from external evaluation.

Addressing all the challenges and opportunities in this work involves a significant number of players including the providers of initial teacher education programmes, the providers of induction and continuing professional development programmes, the Teaching Council, the Department of Education and Science, the education partners and schools and teachers themselves.

While there may be many different ways to try and improve a school system, the recently published McKinsey report, having studied 25 of the world's school systems, suggests that the three things that matter the most are:

- getting the right people to become teachers
- developing them into effective teachers



- ensuring that the system is able to deliver the best possible instruction for every child.

We look forward to playing our part with the Teaching Council and everybody else in the work that needs to be done to ensure that the Irish school system continues to be up there with the best.

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## THE KNOWLEDGE SOCIETY AND ICT AND WHAT THEY MEAN FOR EDUCATORS

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In this paper I will cover three main questions, starting with a discussion about what the 'knowledge society' means and examining some of the contested interpretations of this term. In the second part of the paper I will consider what the 'knowledge society' might mean for the island of Ireland, and thirdly, I will address some of the implications of this in terms of policy and vision, knowledge retrieval and knowledge construction.

By way of introduction, it may be useful to recall how the term 'knowledge society' emerged. It has been asserted that the evolution of many societies can be traced from a period of subsistence agriculture, to a period of industrialisation and, in some countries, to a post-industrial economy which is marked by greater emphasis on the service and retail sectors and, increasingly, to the production, organisation and exchange of knowledge.

Temple (2004)<sup>1</sup> for example, talking about the emergence at the end of the twentieth century of new types of social and economic arrangements, quotes Delanty, Giddens and Knorr Cetina to argue that

*They were based not on the production of physical goods, but on the production, organisation and exchange of knowledge. But this change has been seen as more than simply a move from manufacturing industries to ideas-based industries (though this distinction must be open to challenge). A cognitive shift is said to have occurred, as new knowledge became incorporated into cultural and institutional forms, not merely economic ones, changing them in the process (Delanty, 2001).*

*The implications of this change at personal, organisational and societal levels are, it is argued, enormous, and may not yet be fully comprehended. These changes may be summed up in the expression "the knowledge society": this goes beyond the idea of knowledge being traded and applied mainly in the economic arena, and implies the diffusion of expert systems, based on abstract, "disembedded", knowledge, into all areas of social life (Giddens, 1991; Knorr Cetina, 1999).*

Not surprisingly, there has been much debate about what is really meant by the knowledge society; at the risk of over-simplifying an extremely complex discourse on this question, I want to focus on what seem to me to be three critical points.

The first relates to the difference between *information* and *knowledge*, and we do need to be clear about this since the two terms have sometimes been used interchangeably as if they meant the same thing. We can define 'information' as data which is inert, can be stored and exchanged; knowledge is the reconstruction of information by an individual. As Cornu (2006) puts it, "information can be transmitted; knowledge must be acquired and constructed". He goes on to suggest that an information society is one in which 'information' is a commodity that can be exchanged, bought and sold whereas a knowledge society is a human society which imposes values on the use of information to strengthen justice, solidarity and peace by making information accessible to all. In other words, a knowledge society would ensure, for example that governments took steps to reduce the digital divide. The recent decision (2008) to open up the domain names on the internet is a good example of that. The change will allow other scripts (apart from the Roman) like Cyrillic, Arabic and Asian scripts such as Thai, Japanese or Chinese which will open up new dimensions to those four-and-a-half billion individuals for whom the Roman script is alien. Those users of Roman script currently on-line number a mere one-and-a-half billion by comparison.


My second point builds on the first: when policy makers began to examine what they thought a knowledge society meant in the late 1980s, they seemed more interested in what it meant for the economy than for society as a whole. Thus, for example, the United Kingdom Secretary of State for Trade and Industry said "A knowledge driven economy is one in which the generation and exploitation of knowledge play a predominant part in the creation of wealth" (1988). In effect, this was a view that knowledge was in the service of capitalism driven by competition and market forces in the public and private sectors. But this somewhat narrow view began to be challenged, not least by the European Commission's Viviane Reding (2002), whose responsibilities have included both education and media and the information society. In a paper that is particularly relevant for educators she indicated what she saw as the skills needed by young people in what she called 'a knowledge economy'. They would need to develop high-level cognitive skills for:

- Working safely in teams (whose members may be in different locations);
- self-reliance and self-management;
- collaborative problem-solving;
- creativity and innovation;
- high-level reasoning, analysing, conceptualising;
- communicating and understanding within multi-cultural environments;
- autonomous learning.

On the other side of the world, in Australia, the Adelaide Declaration on National Goals for Schooling in the Twenty First Century (1999), saw that its pupils needed to be "confident, creative users of new technologies, and understand the impact of those technologies on society". But it also recognized that "schooling should be socially just" and this meant, for example, that students "should understand







and acknowledge the value of Aboriginal and Torres Strait Islander cultures to Australian society". In South Africa, the Stellenbosch Declaration on ICT in Education (2005) resolved that "Education is a key issue in the knowledge society" and that it was their responsibility to promote 'digital solidarity' with those in developing countries.

What we might conclude from these comments is that we need to have some clear thinking about the types of knowledge that are going to be needed in a knowledge based society, and to accept that in addition to knowledge of 'matter', whether scientific, mathematical or historical, we also need to value knowledge of self and knowledge of others.

My final point links to the previous two; what all commentators seem to agree on is the central role that ICT is already playing in the shaping of knowledge-based societies through the creation and distribution of knowledge and the ever-increasing opportunities for social interaction. But, to restate a point I made some years ago (Austin 2004), we need to appreciate that there are embedded values in the ways we use ICT. As Levy puts it (2000), the internet enhances our capacity for collective learning and intelligence. We return to this point in the final section of this paper in an analysis of how young people are using ICT not only for what we can call curricular purposes but also in the pursuit of affective knowledge.

So to conclude this first part of the paper, we need to be sure that when we talk and write about the 'knowledge society', we are speaking the same language and meaning the same things. In my view, this term has to include both economic and social features; is distinct from an information society, and implies an understanding of the often hidden values that lie behind our uses of ICT. And finally, these definitions are critical for educators because of the relationship between schooling and the knowledge society: at stake are fundamental questions about what kind of society school is preparing young people for and this in turn requires us to reflect on the kinds of knowledge we believe are essential for the future.

### **Is our island ready for the Knowledge Society?**

The questions and issues raised in the first part of the paper are the focus for academic and professional debate across the world, not least because one of the links between 'knowledge societies' and globalization. (Hepp et al, 2004). But what does any of this mean for the island of Ireland?

In the land of saints and scholars, it might be said that in the past, knowledge was 'preserved' by an elite and manuscripts were copied for a small section of the literate population. The role of the churches in promoting schooling and the advent of public education in the nineteenth century have made some forms of knowledge accessible to all, building on a broad tradition of 'learning' as a valued activity both formally and informally. Is there any part of the world which has a stronger culture of celebrating knowledge, including that built around pub

quizzes? But our island has to pay its way in a fiercely global market place where economic survival depends on exploiting knowledge in commercial ways. How well are we placed to survive, living as we do on the edge of the European landmass, on the geographical periphery of Europe with all that means for increased transportation costs in the export of manufactured goods?

The success of the Celtic Tiger economy in the Republic of Ireland has been rightly celebrated, with many commentators pointing to the key role played by the social contract, an understanding between employers and the workforce to regulate wages and productivity. In contrast, Northern Ireland is only now emerging from three decades of civil conflict. In an article on the characteristics of successful economic regions, Hudson et al (1997) have claimed that low levels of inequality and high levels of trust between citizens are critical. One of the legacies of the 'Troubles' is that building trust between different communities and political parties is still difficult and not made any easier by the segregated nature of housing and schooling in Northern Ireland and the political suspicions that still exist between some politicians in Northern Ireland and those in the Republic.


So we can see that the development of the knowledge society on our island will require sustained efforts to build trust both for economic and social reasons, and we know that one of the ways this can be achieved is through purposeful contact between different groups. A large body of research on the 'contact hypothesis' is helping us to understand how contact can be embedded in educational and youth programmes (Hewstone et al, 2006) and more broadly in society. But we ask in the final section of this paper how much this research has informed thinking about the place of ICT in the knowledge society on both sides of the Irish border.

### **Vision and Policy**

In our book on *E-schooling: global messages from a small island* (2008), John Anderson and I suggested that if we want to move schools from e-learning towards e-schooling, where the entire school system embraces the notion of re-schooling through the use of ICT, there needs to be a clear vision about what ICT is for, and for policies within education to be aligned and sustained. Alignment of policy means not only that all educational initiatives are pointing in the same direction but that educational policy is connected to broader economic and social goals. In our view, these goals should be based around justice, social inclusion and enterprise.

So where does ICT sit in all this? There are three critical levers for implementing and sustaining policy – the curriculum, the ICT infrastructure and the professional development of teachers. In Northern Ireland, a revised curriculum, to be introduced from September 2008, is based more on skills than content with 'thinking skills and capabilities' designed to enable pupils to 'manage information' and 'work with others' between the ages of 5 and 14. Pupils can be





entered for an ICT accreditation scheme at age 11 and 14 run by the Council for the Curriculum Examinations and Assessment (CCEA). But for students aged 14-18, there are no specific requirements for the use of ICT in any assessed way at either 16 or 18. Unless students choose to take the subject of ICT they may have very little experience of digital learning. This was certainly what was reported to me by a group of typical second year undergraduate students in 2007. The ICT 'black hole' at 14-18 is an issue that will need to be addressed in the strategic review of ICT policy in Northern Ireland which is due to report in late 2008.

In the Republic of Ireland, the assessment of ICT may be introduced as part of the review of the Senior Cycle for students usually aged 16-18, but there is clearly a case here for some productive cross-border thinking that is respectful of sovereignty issues but recognizes the huge potential economic and social benefits of considering an all-island ICT strategy in education. Cyberspace does not recognize conventional borders and boundaries.

What about the infrastructure of ICT in schools? In a recent report for Futurelab, Merlin John described what Northern Ireland possesses as a 'glimpse of the future' (2008). He says that "Northern Ireland's Classroom 2000 (C2K) network for all of its schools is reckoned on being the biggest PC network in Europe, and certainly the biggest education one of its kind." To get an idea of size and scale, this involves 3,000 or so servers in all 900 primary, 230 post-primary and 45 SEN schools across Northern Ireland (that's 20,000 teachers and 330,000 pupils). The key issue here for this paper is that the development of C2K infrastructure, based on a public-private partnership, is an example of a sustainable system that provides equitable access for ALL children.

In other words, it's a good example of 'joined up' government thinking, where we can see an alignment between economic needs, social equity and educational planning. In terms of hardware, this translates into a core ratio of 1 computer for every 5 pupils overall; in practice, many schools supplement this provision with their own resources and this can lead to some disparities in access. In the Republic of Ireland, current computer-pupil ratios of 1:8 are expected to reduce to 1:5 through the National Council for Technology Education's Development Plan unless the economic slow-down puts the brakes on this significant investment.

While hardware provision may be slowly moving towards the goal of every child having their own portable hardware, the other critical aspect of infrastructure is the extent and width of broadband connectivity in schools. As expectations rise about the need for promoting creativity through, for example, the manipulation of moving image, hardware has to have more memory and faster connectivity to the internet. At present, in 2008, the United Kingdom is 9th in the league table of broadband speed while Ireland is 11th, both a very long way behind Finland and Sweden, and lower than Poland and Slovakia. In a competitive global economy, speed matters. What concerted inter-governmental action might Dublin

and Belfast take to address one of the central infrastructural planks in building a knowledge society?

### **Knowledge retrieval**

In the final part of the paper, I want to say something about two critical elements in a knowledge society, namely information retrieval and knowledge construction. On the first of these, I maintain that we need to re-examine the role of the library in the collection, retrieval and communication of information. This is particularly true in school libraries which have sometimes found themselves marginalised with the advent of the internet and an easy but mistaken assumption that on-line access to world wide data has made the school library redundant. In some schools with far sighted leaders, the library has become the centre of learning rather than on the periphery; on a visit to a school in Northern Ireland which recently won the prestigious Becta ICT kite-mark award, Merlin John commented;

*Based around the library, students in the learning centre can work independently in some spaces more reminiscent of higher education, and there are spaces for tutored group presentations and group collaborative work too. Like the rest of the school it is all supported by pervasive but unintrusive ICT that can be used collectively or independently.*

There are several important messages here: if the whole school is to move towards e-schooling, this will impact on the use of space, including that of the library which could become the place where students participate in blended learning of the curriculum, with lessons delivered partly on-line and partly by video-conference. This is particularly significant in Northern Ireland where a declining school age population is making it difficult for many schools to deliver in a conventional way the wide range of academic and vocational courses they are required to as part of the 'entitlement framework' (Department of Education 2006). The other important message from John's comment is the reference to 'collaborative work'. This is an essential part of the type of learning that is needed in a knowledge society and is the focus for the final part of this paper.

### **Knowledge construction and collaborative learning**

Collaborative learning and knowledge construction are becoming two of the mantras used widely in discourse about the knowledge society. In this paper I am using these terms to describe a process of learning which is highly social and which involves young people using information to construct meaning, often for the benefit of others in their own classroom or elsewhere. This does not necessarily involve the use of ICT, but I have chosen two examples of current practice that do use ICT to try to distill some emerging ideas about the possibilities and the difficulties in this kind of learning.

In the first example, the research and development work carried out through the north-south Dissolving Boundaries programme is generating evidence that should



give cause for optimism about the capacity of ICT to deliver a broad range of benefits both for pupils and teachers, not least in terms of citizenship and inter-cultural education. This needs to be said in the light of the rather pessimistic or dismissive tone of some writers (eg Selwyn 2007).

Funded by the Departments of Education in Belfast and Dublin and managed by the University of Ulster and the National University of Ireland Maynooth, this programme uses ICT to link primary, special and post-primary schools together in Northern Ireland and the Republic of Ireland. ICT enables pupils to work together on agreed aspects of the curriculum and it is through the process of working in small inter-school teams that children and young people are not only learning 'subject knowledge' but are also acquiring knowledge of others, and, through reflection on their learning, knowledge about themselves.

Evaluation from the 300 schools that have taken part since 1999 shows that

- Children as young as nine can work together across the border.
- Video-conferencing has connected children in special schools with those in mainstream schools and generated significant levels of motivation for learning.
- Teachers are gradually moving beyond information exchange between their schools to deeper levels of collaborative knowledge construction (Austin et al, 2007)

It is absolutely clear that successful delivery depends on teachers, and teachers need time and opportunities to think carefully about what collaborative learning means; one teacher said;

It's a process whereby equal partners work together at learning, enable one another's learning by sharing ideas and use the initial ideas to create more ideas. I think within that communication and cooperation would be two vital element.

The Dissolving Boundaries programmes uses two main technologies for pupils to work together, video-conferencing for real time discussion on both social and curriculum tasks, and the 'Moodle'

Virtual Learning Environment which gives pupils both a protected on-line forum for asynchronous messages and a shared 'space' or 'wiki' where they can construct knowledge and understanding the topics they are working on. For example, two primary schools working together on a joint study of the impact of environmental change on animals carried out research on leopards

**Figure 1. Primary school work in a 'wiki'**



(Austin et al, 2007). Pupils in the first school posted up some information using black text and this was added to by the second school in blue and with images. (see figure 1 left)

The success of this project led the teachers involved in the wildlife project to extend the depth of collaborative learning between their pupils and they decided to work on a project in creativity and literacy. One of the teachers explained the plan:

*We are now working on a Monster Exchange type project. Here is an outline of what is happening.*

- 1 Children in both classes have drawn and coloured monsters.*
- 2 Each child has written a description of his/her monster.*
- 3 The descriptions are now being added to the wikis.*
- 4 Next the children in the other class will read the descriptions and use them to draw monsters. (At this stage my girls will draw monsters from the descriptions written by children from [partner school] and vice versa)*
- 5 These monsters will be scanned and added to the wikis. The original artists will have an opportunity to compare monsters drawn from the descriptions to their original artwork.*
- 6 The original monsters will be scanned and added to the wikis.*

This project prompted a flurry of exchanges between pupils like the one below;

*Dear N, I will be drawing your monster. Can you tell me are the fangs at the sides of his mouth?*

*What colour is the dark stuff coming out of his nose?*

*What do you mean by \*\*roaches?*

*Did you draw him at home watching tv and eating food?*

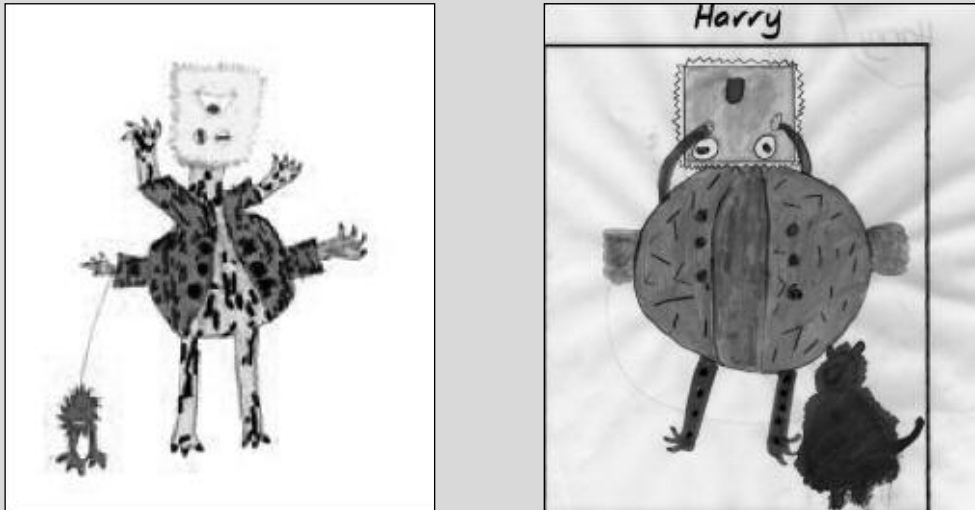
*Where are the ears?*

*Is there anything on his t-shirt?*

*Goodbye*

*from R.*

This enquiry is an example of Salmon's Level 4 where "participants respond constructively to ideas and their application and are now learning from each other".



*Figure 2 shows an original monster drawing and the other school's interpretation of drawing instructions.*

We had noticed in previous years that some schools simply exchanged information in topics without there being any evidence of how this information was being shaped as knowledge. In 2007, therefore, we analysed school interaction, taking account of the work already done by Salmon (2000), Ligorio (2005, 2006) and others on levels of collaborative learning. As we said in our 2007 research report on Collaborative Learning, we wanted to develop a model of on-line interaction which was based not only on levels of curricular interaction but which also took account of the place of bridge-building and inter-cultural education in the pupils' work.

The working model which emerged was as follows;

**Level 1:** Teachers use a variety of means (e.g. Moodle, video-conferencing and face to face meetings) to establish a working partnership with the other school where pupils exchange personal and curricular material and where teachers use appropriate technology to plan and monitor their pupils' work.

Many schools went beyond this to what we see as an intermediate level which we call **Level 2**, where there is evidence of regular social and/or curricular interaction, including the sharing of ideas and perceptions by pupils. This is a valuable building block towards more advanced collaborative learning which we see as having some or all of the features of what we call Level 3 interaction.

**Level 3:** Evidence of challenging knowledge construction and/or attitudinal change; pupil ownership of the learning process and/or pupil reflection on the learning process which includes elements of meta-cognition ('learning about learning')



The report also considered what were the most important factors in explaining why some schools seemed to be more successful in this kind of work than others. Reflecting on extensive international research on this issue, it is worth restating our principal finding:

*One very clear message from our evidence is that collaborative learning between schools is often but not always associated with a tradition of collaborative learning **within** the schools. We noted examples of this earlier in the report when we analysed teachers' understanding of what collaborative learning involved. We also agree that the role of senior management in schools is extremely important in supporting teachers engaged in work that can often disrupt the normal timetable. We had impressive examples of head teachers showing their commitment to the programme by attending either the planning conference in September or the review conference in April.*

*Our evidence does not, however, lead us to the conclusion that these 'structural conditions' are more important than teacher expertise or attitude. One highly significant finding from our work was that there was only one comment from a teacher indicating that it was the **personal relationship** between teachers which mattered most. What emerged far more strongly was that it was their **professional relationship** which had the most bearing on learning outcomes. This relationship implied a readiness to develop sufficient technical expertise to make the link work, to plan flexibly in ways that fitted the work into the emerging curricula in both jurisdictions, and to check pupils' on-line interaction. One teacher said of this 'I just check in the morning and see if there is any response and I have never had any problems'. In other words, a new way of working was being adopted in the interests of ensuring that the link worked well.*

*Clearly there is something here which is also about having a professional attitude so that pupil and teacher messages are responded to promptly. In summary, teacher professionalism means displaying the right values, using 'craft knowledge' to turn big ideas into realistic classroom practice, and engaging in the kind of critical reflection which can get the best out of imperfect technology and adopt innovative ways of working. We identify this as being the single most significant factor in successful partnerships.*

This conclusion has implications for professional development and indeed for the regulation of teacher competences. A workforce for the twenty first century serving schools that are linked more closely to their own communities and to those in neighbouring or distant regions will need continued support in this emerging aspect of being a good teacher.

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## EFFECTIVE TEACHER LEARNING: THE ENGLISH EXPERIENCE

**MR KEITH BARTLEY**

**Chief Executive, General Teaching Council for England**

It is a great pleasure to be here in Ireland today. I have to say that the differences in our national education systems, as well as our common goals and objectives, mean that it is my belief that we obtain real benefit from sharing our thinking and reflecting about our practices.

I am also conscious that Eamon Stack, Chief Inspector, and Dr Roger Austin have set out directions that I hope to build upon. But first, Eamon's paraphrase of Lawrence Stenhouse – "It is not enough that the teacher's work should be studied; they need to study it themselves" – encapsulates the thinking (and the quality of the man himself) that probably best explains why I am here today, in the role that I am privileged to hold. In the early 1980s, as a teacher, I happened to fall in with what might be generously described as a 'Lawrence Stenhouse Appreciation Society'. It used to meet regularly – and often into the early hours – in academic offices and bars around Norwich. Through long hours of wrangling with the likes of Barry MacDonald, Ian Stronach and Rob McCormack and their colleagues and students in the Centre for Applied Research in Education at the University of East Anglia, I forged, in the smithy of my classroom (to paraphrase James Joyce), an enduring and restless curiosity about my practice as a teacher and about what takes teachers to higher levels of professional practice. And that is what drives me still.

### **Teaching: a learning profession**

'Professional' is an often used – perhaps overused – word. We hear something described as 'a professional job', or someone's approach being 'very professional' or indeed 'very unprofessional'. But beyond this common usage, what does it really mean to be a professional, to be part of a profession?

The values and characteristics of a profession can be defined in many ways. They commonly include defined entry standards and a commitment to public service. Teachers often express their professional values through their own personal commitment to teaching and relate them directly to where they work and the pupils they teach.

For me, as for many, a key attribute of a professional – and of a profession – is of course a commitment to career-long continuing learning, to updating our skills to adapt to the changing situation we find ourselves working in; to ensuring we remain flexible and able to deal with new challenges and opportunities. In order to do that, we must be able to analyse what skills, knowledge and attributes we need to develop in the particular context in which we are working. That – and

the use of that judgement to pursue what we need to learn – must be at the heart of what it is to be a professional.

We are, after all, a learning as well as a teaching profession.

**GTC England: supporting high standards of teaching and learning in the public interest**

As the professional body for teaching, the General Teaching Council in England clearly takes a particular interest in both the policy context and practical application of teachers' continuing professional development and education. The overall purpose of our organisation is to help improve standards of teaching and learning in England – in the public interest.

The public interest informs our role in registering and regulating qualified teachers – an assurance to the public that registered teachers are properly qualified and in good standing, and that the small number of teachers who fall below the high standards the profession sets for itself will be dealt with fairly and openly.


We also promote the highest possible standards of teaching and learning as well as ensuring minimum standards. We do this in our advisory role to government and through the support on Continuous Professional Development that we provide to schools and teachers. So although we are not a CPD provider, we do have a clear interest in teachers' access to professional development opportunities and what makes for effective teacher learning that will have the all important impact on pupil achievement in the classroom. Good CPD plays a role not only in the practice of the individual teacher, but in sharing the best, most effective practice across the profession, effecting change and improvement across the system. In this way, the individual can have an impact well beyond their own classroom and school.

There is now solid research evidence to demonstrate what – as teachers and teacher educators – we 'know' instinctively and witness daily. Namely, that well structured professional development opportunities can lead to successful changes in teachers' practice, resulting in school improvement and better outcomes for pupils.

**The impact of effective CPD**

A recent study commissioned jointly by GTC England and the Association of Teachers and Lecturers drew on twenty research reports about CPD for teachers in England published between 2002 and 2006. The study was a systematic review and synthesis of studies commissioned by or for a policy maker audience and aimed to provide a trustworthy overview of professional development that could inform the policy environment. The study found evidence that effective, structured and reflective CPD does have an impact on teachers' attitudes,





knowledge and skills. It also concluded that good CPD is likely to improve both teacher motivation and morale, and pupil learning and achievement.

I will return to what the evidence tells us about what makes for effective CPD. But how do we create opportunities for access to good CPD opportunities that maximise impact in the classroom – and support effective knowledge sharing among teachers?

The policy climate around CPD in which we operate in England has shifted considerably in recent years. GTC England has made the case for increased teacher access to CPD since we came into being in 2000. Now there is a real consensus about the benefits of high quality development opportunities – to the point where this school year sees the introduction of new performance management arrangements that will see the CPD requirements of every teacher in England being identified as part of performance reviews. A new professional standards framework for teachers has also been introduced in England this year, outlining the requirements teachers need to meet at each stage of their career.

Together these recent developments put in place a requirement to assess teachers' CPD needs, and a framework for career progression. But we believe a third element – a CPD curriculum covering context, specialism, leadership, pedagogy and professionalism – would further support teacher learning. This curriculum needs to be systematic and coherent, focused clearly on impact on teaching and learning and sustained throughout a teacher's career.

We believe strategic leadership of CPD in schools is vital to create the conditions where high quality opportunities for professional development truly fit the needs of individual teachers in their context and for their pupils.

### **Key factors in effective CPD**

Our knowledge about what makes for effective CPD has increased dramatically in recent years. The research synthesis also examines this issue. One of the key findings of this research is that the greater the influence that teachers have in identifying their own professional development and learning needs, the more likely they are to find it effective. The study also identifies a number of other key factors in effective professional development:

- The role of the head teacher and other senior staff in promoting and supporting CPD
- Design of CPD so that it is relevant to teachers as they progress through different stages of their career
- Collaboration between teachers
- High quality external provision and support in its many forms – including working with other experts through school networks, developing new skills through coaching, and mentoring and attending award bearing courses

The research also advocates a well structured and sustained approach to CPD over time – although it was also suggested that many teachers tend to equate professional development with a fairly traditional approach to in-service training and once-off external courses.

### **Professional learning communities**

Roger Austin has underlined the significance of teachers' perceptions of collaborative learning being profoundly influential on the outcomes for their pupils – and thus how important it is to both challenge and develop teachers' experiences.

Our report has also highlighted the value of professional learning communities within and between schools. These communities were also the subject of research carried out for GTC England, the (then) Department for Education and Skills and the National College for School Leadership. The report concluded that effective professional learning communities exhibit eight key and inter-related characteristics, and at the risk of inducing list-fatigue, these were:

- Shared values and vision
- Collective responsibility for pupils' learning
- Collaboration focused on learning
- Individual and collective professional learning
- Reflective professional enquiry
- Openness, networks and partnerships
- Inclusive membership
- Mutual trust, respect and support


The researchers found that learning communities were created and sustained through explicit promotion and maintenance and by optimising the available resources and structure – they didn't simply come into being. School leadership and management was an important factor. The commitment of individual members of staff was also important, as were links with other schools, and focused CPD co-ordination.

In thinking about how we can maximise the benefit of professional learning opportunities – for teachers, for pupils, for the whole school, and across the system as a whole – it may help to think about CPD as essentially a way of bringing about change and improvement.

### **Delivering change**

In the Innovation Unit's recent publication 'A D&R System for Education', Tom Bentley and Sarah Gullinson tug away at the means by which systemic change and innovation can be delivered within our education systems. They comment on the array of research-led approaches to innovation and improving practice, but conclude that this research and development model is insufficient to bring about real and lasting changes in classrooms. They observe that "effective innovation





cannot be a free for all where evaluation and validation are concerned.” It must be more than a ‘this works for me in my classroom’ but not be hidebound by a kind of education ‘star chamber’ though which only ideas that work can pass.

But how do teachers act as an agent for change to bring about improvement in the classroom – and indeed contribute to change on a wider scale? First, they need to identify what it is about their own teaching that they want to work on, and, vitally, what is already known about it. They will plan what they want to learn, and how they will put this into practice – what it is that they will change. Along the way, they will seek support and feedback from colleagues. They will want to evaluate the impact of what they did and of course they will want to share what they have learned so that improvements in practice can be spread more widely, both in and beyond the school. The GTC Teacher Learning Academy has been piloting a structured approach drawing on these ‘core dimensions’ of effective learning for the past three years. I’d like to return to the Teacher Learning Academy shortly.

#### **Access and obstacles to CPD**

Teachers taking part in the annual GTC England teacher survey give an encouraging picture of access to professional development opportunities, albeit with some caveats. While increasing, access appears to be patchy, with differences between groups of teachers. According to last year’s survey, the more senior the teacher, the more likely they were to feel that their professional development needs had been met. There was also a split between phases, with secondary teachers generally less satisfied that their needs had been met.

Using information technology remained the area in which most teachers said they wanted to increase their skills. Teachers new to the profession were most likely to identify addressing under-achievement, teaching gifted and talented pupils and those with special educational needs, raising aspirations and supporting literacy. New secondary teachers also cited behaviour management as an area where they wanted to increase their skills.

Although teachers tell us their access to CPD is increasing, there are clearly obstacles to be overcome in bringing about engagement in relevant and effective development opportunities across the profession. I don’t think it is a great surprise that time and opportunity are factors for many teachers. A school-wide strategic approach is also necessary to open up opportunities particularly for collaborative CPD. Observing, coaching and mentoring all have to be carefully planned for in a busy school environment. Although things look very different from say thirty years ago, the culture of the closed classroom door still persists to some extent.

#### **Study of teachers’ experiences**

GTC England has also commissioned – with the DCSF and the Training and Development Agency for Schools – *Becoming a Teacher*, a six year study of



teachers' experiences of their initial teacher training and early professional development in England. This year's report focused on the teachers' experience of their first year in teaching, and provides some particularly interesting perspectives.

The majority of the case study teachers interviewed found the CPD they received helpful. Where new teachers found their experience of professional development less helpful, they tended to cite lack of CPD that was tailored to their own context, and what I think we would all recognise as a 'stand and deliver' style provision of training and development.


The findings also touched on continuity between teachers' initial training and their early experiences of CPD once in school. Teachers in the Becoming a Teacher study spoke of some repetition during induction with what was covered in their initial teacher training. The researchers recommended that policy makers consider how greater continuity between ITT and induction in England can be secured. We have now embarked – with the Training and Development Agency and partners from higher education and initial teacher training – on work to explore these issues of continuity and coherence further.

### **The innovative school**

Other research that we have undertaken jointly with the Innovation Unit (to be published shortly,) has also identified some of the characteristics of successful teacher-led innovation and, encouragingly, discovered that many of these characteristics were also found in schools that fostered innovation. These have been classified as features of leader-led innovation and I share them with you now as part of this reflection on the environments that most effectively support teacher learning.

According to this study, innovation thrived in schools with strong and reflective leadership attitudes and behaviours. This included heads deliberately seeking new ideas from other sites; conscious reflection on in-school practices; deeply distributed ownership of both innovation and leadership of it; permission to experiment and for things 'not to work'. These schools saw their leaders modeling innovative practice and enabling pupils to play their part in the design, fulfillment and evaluation of innovations. These schools and their leaders had a commitment to CPD as a core practice, not a bolt-on. Time was made to initiate and experiment, and systems and processes for enquiry and reflection were in place, supported by good management and administration. Before we get too rosy however, it is worth remembering that many of the actions described as innovative are locked in single classrooms, many are actually about incremental change, many go unsupported and unevaluated, and some are actioned on an idea without due reference to what is known from the research or academic knowledge base.





There is a challenge and an opportunity for school leaders here. We know that head teachers long for greater autonomy, less central direction, more freedom to manoeuvre. But they also need permissions: national policy needs genuinely to support innovation. And it is innovation with rigorous and disciplined creativity. These are highly accountable professionals who, we hope, are not going to experiment with the life chances of young people on the basis of hunches and guesses.

Finally I should like to mention another piece in our research-informed jigsaw about effective teacher learning:

### **Professional connections**

A 2007 DEMOS research report, *DIY Professionalism: Futures for Teaching*, by John Craig and Catherine Fieschi, argues that: teacher professionalism is inevitably linked to doing what is best for children; teacher professionalism, like teaching, is constantly evolving – what the public expect of teachers is changing, and in many cases increasing – teachers are often expected to be responsible for child safety and welfare as well as their education; teacher professionalism is increasingly personal and the markers of it are increasingly cultural rather than formal; teacher professionalism is different for different teachers – hence DIY professionalism.

One of the roles of the GTC is to help create a new literacy in professional conversations and connections. There is strength for teachers in networks. Our three professional networks – for new teachers, for CPD leaders and for those promoting racial equality and diversity in schools – also play a role in helping teachers share and learn from one other; linking teachers nationally and putting them in touch with the latest research and evidence.

When teachers take more responsibility for their professional work, they become more able to self evaluate, to develop their capacity as reflective practitioners. It follows that they are willing to take ever higher levels of personal responsibility. They are not just following rules, but internalising them so they create a highly personalised experience of teaching and professionalism.

So how is GTC England using the knowledge we have garnered about effective CPD to benefit teaching and learning, putting together our research-informed jigsaw? And how do we support teachers to access this knowledge?

### **GTC Teacher Learning Academy (TLA)**

I mentioned earlier the development of the GTC England Teacher Learning Academy (TLA). The TLA was launched as a pilot project in 2004 and its development right from day one – in fact from well before day one when the idea was first conceived - has been underpinned by a very rigorous evidence-based approach to what makes effective CPD. The TLA recognises teachers' professional learning that takes place every day in classrooms and schools. It

provides a framework to support teachers to plan, carry out and maximise the benefits of many kinds of professional learning, whether something a teacher is undertaking in their own classroom, or as part of a more formal CPD experience. Teachers submit evidence of their professional learning for one of the four stages or levels within the TLA and their submissions are independently verified before TLA recognition is given.

So TLA projects are not qualifications or courses, they are rooted in the classroom. Teachers are able to focus on their own role and the context they work in, addressing priorities for them, their pupils and their schools. Projects undertaken through the TLA help teachers to plan and make practical changes in the classroom of direct benefit to their pupils.


One of the core dimensions of the TLA is that teachers share the findings, ideas and best practice that come out of projects. This knowledge sharing can be with a colleague, across a school or beyond. TLA projects at the highest stage four are expected to make a significant contribution to the professional knowledge base. Reflection – including professional dialogue and mentoring – is an intrinsic part of the process. So teachers are not only effecting change in their own practice and their own classroom and for their own pupils; they are also influencing practice on a wide scale – and from the classroom upwards and outwards.

Through the TLA, teachers are able to draw on and practically apply robust evidence and theory in the classroom. One of the ways we are supporting teachers' engagement with research is through our online 'Research of the Month' feature. Trustworthy and relevant research on a chosen theme is summarised and illustrated in practical classroom contexts, frequently using teachers' own published research as case studies. 'Research of the Month' is increasingly featuring in TLA projects as teachers 'engage with the knowledge base' – one of the key requirements of the TLA. 'Research of the Month' also provides a ready source of references for trainee teachers.

There are now teachers from virtually every local authority in England actively enrolled in the TLA: approximately 5,000 teachers from more than 1,800 schools. In the coming months and years we will be working with schools and partners across the education system to extend access to the TLA to more and more teachers.

We're hoping that the benefits of TLA submissions will reach not only those teachers who take part, and those with whom they share their knowledge. We would like to see a 'bank' of TLA submissions on a myriad of themes and topics available to all teachers in all schools. These case studies would be verified and accredited; teachers would know they were based on what has really worked for others, and that they achieved results in the classroom. Teachers have told us through our survey that they want more opportunities to share knowledge





among themselves, and we know how beneficial this can be. The popularity of the newly relaunched *Times Educational Supplement's* online resource bank – where teachers can both download and upload tried and tested resources – demonstrates the appetite among teachers for sharing in this way.

New technologies are likely to have an important part to play in teacher learning in the future. The possibilities for interactivity, not just publishing, opened up by Web 2.0 are very promising. And the *technology* – not the content, we're not talking about Facebook for teachers! – that lies behind the social networking sites that have had such an impact in such a short time has much to offer.

There are many approaches to learning platforms being developed, and a very live debate is taking place about whether one solution or many is the key. The answer is likely to lie ultimately with the users, and I have to observe that the list of failed attempts at providing an electronic platform for teacher portfolios is both long and distinguished. Nevertheless I hope that some of the exciting developments that we are planning around digitising the submissions made through the TLA will actually translate into valid and valued mechanisms for sharing practice. But at the end of the day we have to remember that technology is great for sharing information but teaching, at its best, is about inspiration. And the technology for inspiration is a human being – it's me or you.

### Conclusion

I have spoken a lot today about teacher learning in the context of the classroom: ongoing development for qualified and practising teachers. But of course it all starts with you, with initial teacher education and training.

For teachers, initial training is the beginning of their learning journey in the profession. It lays the foundations that will take teachers through qualification and into their first teaching post. But that learning journey is one that will continue. So as well as the core skills and knowledge that teachers need on day one of week one of the first term of their teaching life, initial training imparts the skills that will enable them to keep learning, adapting and improving throughout their career.

I should like to close with one further observation, namely that by the age of eighteen, every prospective teacher has had twelve or more years observing and experiencing good, bad and indifferent teaching. I suspect that they have already learned more about how to teach than they will learn in their teacher training and subsequent career!

## WORKGROUP 1

### DIGITAL VIDEO AS A TOOL FOR CHANGING ICT LEARNING

**Presenters: Dr Paul Conway, University College Cork  
Dr Joe O'Hara, Dublin City University  
Dr Roger Austin, University of Ulster**

See research project progress report on page 102. No separate workgroup report was submitted.

## WORKGROUP 2

### ART AND SCIENCE IN EDUCATION: MOVING TOWARDS CREATIVITY


**Presenters: Mr Ivor Hickey and Mrs Mary Flanagan, St Mary's University College, Belfast**

This workshop was designed to raise awareness of how creativity is being introduced into the learning experience of students on Initial Teacher Education (ITE) courses. This was achieved by making the workshop extremely 'hands-on' and interactive. Participants were taken out of their comfort zones and asked to take part in art/science learning experiences similar to those undergone by our students.

The workshop opened with a brief presentation to orient participants. This focused on how art and science can be taught in a synchronised way through use of commonalities between the subjects. The presentation opened with the question "Art is...?" Participants completed this phrase in a number of different ways as shown in Table 1. This was followed by the complementary question "Science is.....?" Again responses are given in Table 1.

Art is....?	Science is....?
Imaginative order	Objective
Individual	Rational
World we live in	Logical
Creative expression	Investigative
Expression of emotions	Experimental
Everywhere	Uncertainty

**Table 1 Responses of participants to the questions Art is...? and Science is ...?**



The presenters then added in some further possible endings. For art these included: thought provoking, controversial, intellectual, challenging, creative, confusing, communication, investigation, experimental, explorative and pretentious. Under science the following were added: questioning, testing, cumulative, imagining, observing, linking, proven, constructing, evaluating, solving and truth.

Some discussion of these suggestions ensued and it was interesting to see that there were areas of overlap and interaction between the processes associated with the two disciplines. The next question posed was "Can the two subjects be linked in the educational experience of learners?" It was noted that undergraduate ITE students at the beginning of their studies thought that art and science were not well linked – only music, religion and languages being further from science than art! It was emphasised that a considerable body of literature concerning the interaction of art and science exists, but little of this has been translated into a format suitable for curricular use in schools. The following commonalities were highlighted as being a ways in which this can be achieved: modes of inquiry, fields of study, experimentation, creativity and imagination, and aesthetic experience. Recognition of these similarities and areas of overlap has consequences for education. The presenters then described the Leonardo Effect, a research study trialled in schools across Ireland and the UK that tested the synchronised integration of art and science in education, through the use of 'joint learning outcomes'.

The participants engaged in practical, investigative activities to test the feasibility of joint learning outcomes. This involved direct hands-on observation of living creatures. Simple joint learning outcomes were devised around the skills of expressing/reporting observations in whatever way the workshop participants thought most suited to their experience of the material, their skills, and personalities. Two types of biological material were utilised: woodlice and leaves and twigs from trees. Hand lenses, pencils and paper were provided. The results were most interesting. Many participants claimed that they had never looked closely at any biological material before, but, undaunted by their nervousness, they were able to express their experience in a variety of ways. Some wrote formal descriptions, others drew accurately or imaginatively. There was considerable cross-over between affective and effective reporting. One individual pointed out that their artistic response led to words rather than drawing; others reflected on the use of visual literacy to communicate scientific information.

One important point accepted by most was that synchronising art and science in this way was inclusive of different learning styles and contributed to overall education, as opposed to the narrow subject-specific learning that currently dominates the school experience of many learners.

## WORKGROUP 3

### CROSS BORDER EXPLORATION OF CPD NEEDS OF HEADS OF YEAR

**Presenters: Dr Caryl Sibbett, Queen's University Belfast  
Mr William Thompson, Belfast**

This workshop introduced a joint research programme between staff of the Schools of Education at Queen's University Belfast and the University of Limerick which aims to investigate the CPD needs of heads of year in secondary schools. The academics in both universities have been involved in training pastoral teachers and in researching the pastoral systems in schools. A fortuitous meeting gave us the opportunity to explore some of the areas in which we had a common interest and a series of conversations led to this project.

The long term aim is to lay foundations upon which to build alliances between professionals across the island. This will be in order to disseminate good practice, develop materials and processes which will support pastoral teachers in their working lives and contribute to improving the life chances of pupils.

The increasing burden of poor mental health and distress among youngsters places increasing pressures on parents and schools (Shucksmith et al, 2005). In schools it is often the pastoral care teachers and particularly year heads who have to deal with situations which they often feel under-prepared for (Wilson et al, 2004).


The aims of the initial study are to:

- gain an understanding of the pressures and concerns facing heads of year in their role within the pastoral systems;
- explore similarities and differences of experience and training;
- identify learning which could be applied across the island.

This phase of the investigation will be a qualitative study using focus groups. Four focus groups will be recruited, two from ROI and two from NI, each of six to eight year heads who work in non-selective schools. Our intention is to get a sense of:

- How year heads currently understand their role
- How do they perceive the range of pressures and demands on them
- What was their progression into this role
- How prepared did they feel for this role
- How do they evaluate the support services available, both internally and externally
- What are their career development needs





In the workshop, the two presenters also shared relevant findings from several earlier research projects which highlighted a range of key issues of concern to heads of year and pastoral teachers in Northern Ireland. Such issues were further explored through activities and discussion with professionals from both parts of the island participating in the workshop.

The data from the current research is presently being collected and analysed (April 2008) and the findings will be reported the in the near future.

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## WORKGROUP 4

### DEVELOPING REFLECTIVE SKILLS IN STUDENT TEACHERS

**Presenters: Dr Gerry MacRuairc and Dr Judith Harford,  
University College Dublin**

Reflective practice is widely recognised as a central tenet of the teaching and learning process (Brookfield, 1995, 2005; Zeichner and Liston, 1987). Its resonance with teaching is attributable to the fact that it encapsulates the complex, analytical and inquiring nature of teaching at a time when the profession is under attack by a range of discourses emanating from the new managerialist perspective and the competency driven agenda associated with performativity. The development of a discourse on reflective practice owes much to the scholarship of Dewey and Schon, both of whom advocate that learning is contingent upon the integration of experience with reflection and of theory with practice.

Despite the widespread recognition of the value of reflective practice to the teaching profession, there remains considerable confusion and lack of clarity around its meaning and its function in terms of pedagogy and praxis. As teacher educators, we identified a disconnect between the theory surrounding reflective practice and praxis at individual student teacher level. While student teachers were 'aware' of the origins and evolution of the term reflective practice and the importance of *appearing* to engage in reflection, they did not see its application



to their real life teaching experience nor did they recognise the benefits of forced reflection (Harford and MacRuairc, 2008).

### **Workshop**

This workshop explored ways in which the post-lesson consultation between supervisor and student teacher can be effectively used to promote reflection. By exploring participants' experiences of receiving feedback, this session examined the potential of the post-lesson consultation to support and enhance participants in the process of reflection. The unique nature of the SCoTENS conference provided a context where a variety of perspectives of teacher educators and practitioners could be harnessed to explore this particular issue. The cross-border dimension to this was viewed to be particularly useful in exploring different cultural contexts in relation to the supervision process and specifically with respect to reflective practice. Different structures exist in both jurisdictions that impact on the school experience of student teachers which also impact on the quality of reflective practice and on the nature of the feedback process.

The methodology used in this session was based on the principles of appreciative inquiry (Cooperrider and Srivastva, 1987). Participants examined their experience of giving and receiving feedback and the degree to which this facilitated or impinged on the reflective process. While some strategies were identified by the groups in promoting reflection, the main thrust of the discussion related to the challenges that arise from the dual requirement of evaluation/support nature of the supervision process. Key issues for consideration in the future include the timing of the feedback session; the restrictive nature of the evaluative instruments used in many cases; the lack of agreement across the profession around the whole debate over teacher competencies; and finally the inconsistent and arguably indeterminate role of the co-operating/host teacher.


## **WORKGROUP 5**

### **BRINGING SCHOOL COMMUNITIES TOGETHER TO PROMOTE EDUCATION FOR DIVERSITY**

**Presenters: Professor Keith Sullivan, NUI Galway  
Dr Ron Smith, Queen's University Belfast**

This project brings schools, both North and South, into partnership with Higher Education Institutions with the aim of developing and embedding inter-generational based programmes of diversity education for whole school communities. An extremely well attended seminar on the work of the project was led by Professor Keith Sullivan (NUI, Galway) and Dr Ron Smith, Queen's University, Belfast.





Dr Smith opened the session with a review of the literature on school -home - community partnerships, school-improvement for diversity, and family involvement in the design and implementation of diversity curricula within the planned curriculum. It was noted that, despite the ubiquitous use of the rhetoric of partnership in education, research evidence suggested that school practice was still a very long way from a situation where the skills of parents/ carers were considered to be of equal value.

Professor Keith Sullivan then described the work, under the leadership and direction of Dr Simon Lichman, of the Centre for Creativity in Education and Cultural Heritage, Jerusalem (CCECH). The CCECH is a registered non-profit making organisation in Israel which designs and implements innovative education projects that help to create a climate of cultural pluralism and inter-generational understanding. For the past sixteen years, the CCECH has been running programmes that bring Jewish and Arab (Moslem and Christian) school communities together in a long-term, cross-cultural, multi-generational experience – children, their families (parents and grandparents) and teachers. This community-oriented approach enables Jewish and Arab communities to remain committed to each other through the most sensitive periods.

The project leaders then explained how they hoped to use their small SCoTENS grant to explore how the concepts and aspirations of the CCECH model might be adapted to fit the Irish context; in particular, how it might be used to establish sustainable school-based communities of practice in both jurisdictions, knowledgeable and skilled in inter-generational diversity work. This was followed by a very useful discussion involving all those attending.

## WORKGROUP 6

### **BUILDING EFFECTIVE SCIENCE OUTREACH STRATEGIES, NORTH AND SOUTH**

**Presenters: Dr Kevin Davison, Dr Veronica McCauley and Dr. Christine Domegan, NUI Galway  
Dr Billy McClune and Ruth Jarman, Queen's University Belfast**

#### **Introduction**

With the combined generous support of SCoTENS, NUI, Galway Millennium Research Fund, and Forfás, a cross-border multi-disciplinary research team was assembled with the aim of examining the decreasing numbers of science enrolments in both second and third level education. To achieve this goal the researchers focused on mapping and evaluating the diversity of science outreach and communication initiatives in Ireland, North and South. Science policy on the

island allows the possibility of cooperation between researchers in each jurisdiction to benefit from knowledge-sharing, efficiency, synergy, and to reduce the duplication of research. Such collaboration promotes scientific excellence and drives international standards.


The vehicle for this research was twofold, comprising an all-island survey on outreach activities, and the hosting of a research symposium to draw together key stakeholders in science outreach. Organised by the NUI Galway Departments of Education, Economics and Marketing respectively, under the auspices of the Centre of Innovation and Structural Change (CISC), the First Annual Conference on Science Communication, Outreach and Public Engagement took place at National University of Ireland, Galway, on 24-25 May 2007. Invited keynote speakers included: Professor Steve Miller, University College, London; Professor Gerard Hastings, Stirling University; and Jane Jerry, Exploration Station, Dublin. There were also four breakout panel sessions in the following areas: Public Engagement with Science; Embedding Science; Research Approaches and Instruments; Management and Evaluation Instruments. The research symposium examined policy, leadership, evaluation strategies, and key principles of Social Marketing<sup>2</sup> and addressed the concerns of diverse participants, all of whom are involved in some way in communicating science to the public and the evaluation of outreach programmes.

During the symposium, the cross-border, multi-disciplinary research team observed formal and informal discussions, and documented a variety of exchanges between conference participants. In addition to a general conference evaluation, participants were asked for 'expressions of interest' regarding what information would best assist them to strengthen their science communication and outreach activities. These suggestions were incorporated into a post-conference survey to map outreach activities in Ireland, North and South. Despite different legislation, government priorities, and funding structures, an effort was made to begin cross-border dialogue, and the transfer of knowledge regarding science communication and outreach, and to establish a mutually beneficial collaborative relationship between the Republic of Ireland and Northern Ireland. Due to the diversity of the science outreach stakeholders assembled at the research symposium, many valued the opportunity to meet one another, to share

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2 Social Marketing may be defined as the systematic application of marketing alongside other concepts and techniques to achieve specific behavioural goals for a social good, and to bring about social change – e.g. reduce litter, improve citizens' health, conserve energy, or promote careers in science and engineering. In social marketing, a fundamental principle is that programmes to influence actions will be more effective if they are based on an understanding of the target audience's own perceptions and beliefs; target audiences are seldom uniform in their perceptions and beliefs, or in their responses, and so should be partitioned into segments. Another key principle is based on the recognition that the marketplace is constantly changing; as a consequence, programme effects must be regularly monitored, and programme managers must be prepared rapidly to alter strategies and plans. Monitoring and research-based evaluation are critical activities in social marketing (based on material from Social Marketing Institute, Washington DC).





knowledge of science outreach strategies, and to network with partners within each jurisdiction, as well as with those across the border.

Some of the central points of discussion and suggestions for strengthening future collaborative engagement that emerged from the conference are outlined briefly below.

1. **Strategic Focus:** It is critically important to evaluate and identify where there is potential for change to enable successful science communication and outreach strategies. Recognizing enabling factors and those with leverage over key target groupings is fundamental. In promoting science and technology in Ireland, North and South, it is essential to be strategic about the focus, coordination of activities, and budgetary allocation.
2. **Evaluation:** Identifying the potential for change and the creation of strategic initiatives needs to arise from a broad programme of evaluation. Evaluation must be considered throughout the programme design and implementation periods. The process of evaluation is frequently as important as the evaluation results themselves, provided it is recycled back into the programme design and management activities. While evaluation is an additional expense, the cost may be justified if programmes are designed on sound principles. To this end, there is a need for further development of evaluation processes, methodologies and techniques. Social Marketing concepts and principles can provide a solid foundation for the evaluation approaches adopted.
3. **Social Marketing Approach:** The conference demonstrated that Social Marketing principles can improve communication and promotion of science to the public in a wide range of contexts, from general science and technology awareness, to campaigns based on scientific research results such as health promotion, to the promotion of science and engineering as an interesting and rewarding career option. In particular, the following aspects of Social Marketing are important:
  - Programmes and campaigns work best when based on a sound theoretical and research base, allowing for in-depth awareness of the issues facing the audience(s) for the campaign
  - A multi-disciplinary approach, involving professionals such as social psychologists, science communicators, educators, sociologists, anthropologists, marketers and science/engineering professionals themselves, leads to a much more effective programme of communication
  - It is vital to utilise reliable and effective principles from marketing in the business sector, as well as other theory and practice.
4. **Tools and Frameworks:** There is a need for practical tools which can easily be used by professionals in the field of marketing/promotion/communication of science and engineering/technology. As an example, how should a professional go about developing a strategic marketing plan as a basis for developing,

implementing and evaluating an effective Science and Technology (S&T) communication programme?

5. **Policy Integration:** Understanding among policy makers of the issues and the approaches related to different forms of science communication remains low – this results in fragmented efforts, and in some cases programmes which are much less effective than they might be. Thus there is a need for a stronger, more integrated policy framework that includes the diversity of science outreach in Ireland, North and South.
6. **Media Partnerships:** Working closely with the media is important. However, the media have their own interests and aims, and science and science promotion cannot simply be ‘imposed’ on them. Therefore, the media must be seen as an interested partner and included in the broadening of coordination efforts.
7. **Audience Assessment:** Given that so many of the issues to be communicated in science, technology, and engineering are of vital importance to society (improving citizens’ health; understanding of central concerns such as climate change and energy issues; promotion of careers in science and engineering), there is a need to recognise the breadth of the audience and be specific about the target of communication to ensure the greatest return on the investment.
8. **Network Building:** Progress depends on greater dialogue between practitioners from a wide number of fields. Communication between practitioners is vital, and a means of fostering that communication is urgently needed. There is a need to employ cross-sectoral strategies including the education sector, the business community, and relevant professional bodies and public agencies. A central body will be needed to provide leadership and evaluation; to support and coordinate Social Marketing approaches; to provide a centralised resource clearinghouse and database; to provide research expertise, and to develop national and international networks regarding best practice of science communication and outreach activities.
9. **All-Island Approach:** Science communicators in Northern Ireland and the Republic of Ireland are interested in establishing a platform which would facilitate developing an all-island approach where feasible. It was recognised that there are currently limitations to this goal and therefore there is a need to broaden mandates, policies, and scope of activities of science outreach providers in both jurisdictions.
10. **Future Conferences:** A second annual conference will take place in Dublin on 24 May, 2008, hosted by STEPS to Engineering (Engineers Ireland) and Discover Science and Engineering (DSE), with an anticipated attendance of 120 participants. This conference will include a report of the first research





symposium and associated research, as well as keynote addresses by the following people: Dr. Joe Cullen, The Tavistock Institute, UK; Sally Montgomery, W5 Interactive Centre, Belfast; Dr. Hans Persson, University of Sweden; Dr. Svein Sjøberg, University of Oslo; Dr. John Denri, IRCHSET, Dublin; Brian Trench, Dublin City University; Anna Walshe, National Council for Curriculum and Assessment, Dublin. The keynote speakers were chosen both for their diverse expertise, and strategically to create a broader international network to enable the possibility of future research collaboration. It is anticipated that the tradition of annual conferences will continue.

- 11. Additional Strategies:** In addition to the follow-up conference, it was suggested that networking possibilities might also include: publishing an e-zine or email-based discussion group; organizing topical and strategic small workshops intended to explore different aspects of the promotion of science and technology; developing comprehensive databases; establishing various steering groups to coordinate topical outreach activities; strengthening practitioners' understanding of Social Marketing principles/approaches; developing of relevant skills in graduate training; and forging strong links with the education sector.

### Survey Findings

The data collected from the post-conference all-Ireland survey mapping the terrain of outreach activities is still being analysed, but will be made available at the Second Annual Science, Engineering, Communications and Outreach Conference, hosted by Discover Science and Engineering, in Dublin in May 2008. It will also be made available on-line to all interested parties, and it is anticipated that this report will help to shape the coordination and evaluation of future outreach activities on the island.

### Conclusion

The First National Science Outreach Conference and the presentation of the research at the 2007 SCoTENS conference demonstrated that there is a high level of interest among practitioners in improving the standard and effectiveness of the various programmes through which science, technology, and engineering issues are communicated to the public (the general public, school students, teachers, and other target groups). There was also an expressed need among participants to develop a much stronger network of professionals in both the Republic of Ireland and Northern Ireland, in order to facilitate greater effectiveness of outreach activities for the promotion of science with the broader aim to strengthen the economic, educational, and social future of both jurisdictions.

## CONFERENCE PROGRAMME

### Thursday 22 November

Tara Suite, Grand Hotel, Malahide

- Chair:** **Dr Pauric Travers, President, St Patrick's College Drumcondra**
- 3.00 Registration and refreshments
- 4.00 Official Opening by Minister for Education and Science, **Ms Mary Hanafin TD**
- 4.30 **Professor John Furlong**, Director, Department of Education, University of Oxford: *The Universities and Education: The Challenge of the Knowledge Society*
- 5.30 **Mr David Istance**, Centre for Educational Research and Innovation, Organisation for Economic Cooperation and Development (OECD) *Schools and Teachers in the Future: Some OECD Perspectives*
- 7.30 Reception
- 8.15 Dinner
- After dinner speaker. **Mr Eddie McArdle**, Director, General Teaching Council for NI

### Friday 23 November

Tara Suite Grand Hotel, Malahide

- Chair:** **Dr Richard McMinn, Principal, Stranmillis University College**
- 9.00 **Mr Eamon Stack**, Chief Inspector, Department of Education and Science, Dublin: *Better Teachers, Better Schools in the Knowledge Society?*
- 9.40 **Dr Roger Austin**, Senior Lecturer, School of Education, University of Ulster and Project Leader, Dissolving Boundaries: *The Knowledge Society and ICT and what they mean for Educators*
- 10.15 Refreshments
- 10.45 **Six Workshops**
- 1. Digital Video as a tool for changing ICT learning**  
Presenters: **Dr Paul Conway, Dr Joe O'Hara and Dr Roger Austin**; chaired By **John O'Brien**
  - 2. Art and Science in Education: Moving towards creativity**  
Presenters: **Mr Ivor Hickey and Mrs Mary Flanagan**; chaired By **Dr Eugene Toolan**
  - 3. Cross Border Exploration of CPD needs of Heads of Year**  
Presenters: **Dr Caryl Sibbett and William Thompson**; chaired by **Dr Tom Hesketh**
  - 4. Developing Reflective skills in Student Teachers**  
Presenters: **Dr Gerry MacRuairc and Dr Judith Harford**; chaired by **Dr Margaret Reynolds**

**5. Bringing School Communities Together to Promote Education for Diversity**

Presenters: **Professor Keith Sullivan** and **Dr Ron Smith**; chaired by **Dr Kathy Hall**

**6. Building Effective Science Outreach Strategies, North and South**

Presenters: **Dr Kevin Davison**, **Dr Billy McClune** and **Dr Veronica McCauley**; chaired By **Dr Teresa O'Doherty**

- 12.15 **Mr Keith Bartley**, Chief Executive, General Teaching Council for England: *Effective Teacher Learning: The English Experience*
- 1.00 Concluding remarks: **Professor Sheelagh Drudy**, Professor of Education, University College Dublin
- 1.15 Lunch



## LIST OF CONFERENCE DELEGATES

Mr. John Anderson	Managing Inspector, Teacher Education Department of Education
Mr. Ron Armstrong	Department of Education
Dr Roger Austin	School of Education, University of Ulster at Coleraine
Dr. Máirín Barry	Lecturer, School of Education and Lifelong Learning, University College Dublin
Mr. Keith Bartley	Chief Executive, General Teaching Council of England
Ms. Patsey Bodkin	Lecturer in Education, National College of Art and Design
Dr. Andrew Burke	Senior Lecturer, Education Department, St Patrick's College, Drumcondra
Ms Mary Burke	St Patrick's College
Mr. Pat Burke	Assistant Secretary, Department of Education & Science
Dr. Gareth Byrne	Head of School, of Education Mater Dei Institute of Education
Dr. Paul Conway	Lecturer in Education, Education Department, University College Cork
Ms. Eva Creely	NCompass Coordinator, Leargas
Mrs. Fiona Crowe	Teaching Practice Coordinator, St Angelas College Sligo
Ms. Audrey Curry	Head of ITE (Post-primary), Stranmillis University College
Dr. Kevin Davison	Lecturer, National University of Ireland Galway
Dr. Jim Deegan	Senior Lecturer, Education Department, Mary Immaculate College
Mr. Gerry Devlin	Senior Education Officer, General Teaching Council for NI
Ms. Ann Dinan	Director, Education Development, Joint Managerial Body
Ms. Rose Dolan	Lecturer, Education Department, NUI Maynooth
Mr. Enda Donlon	Lecturer in Education, Mater Dei Institute of Education
Prof. Sheelagh Drudy	Professor of Education, School of Education and Lifelong Learning, University College Dublin
Dr. Patricia Eaton	Senior Lecturer, University College Union, Stranmillis University College
Ms. Emer Egan	Assistant Chief Inspector, Inspectorate Division, Department of Education and Science
Mr. Jim Enright	ICT Advisor, Laois Education Centre
Dr. Margaret Farren	Education Department, Dublin City University
Mr. Matthias Fiedler	Project Coordinator, DICE Project

Ms. Maureen Fitzpatrick	Head of Education, Hibernia College
Mrs. Mary Flanagan	Senior Lecturer, Art, St Mary's University College,
Prof. John Furlong	Director, Department of Education, Oxford University
Dr Conor Galvin	Lecturer in Education, Education Department, University College Dublin
Prof. John Gardner	Dean, Faculty of Legal, Social and Educational Sciences, Queen's University Belfast
Ms. Dolores Gilhooly	Head of School, Waterford Institute of Technology
Mrs. Mary Greenwood	St Mary's University College
Mr. Martin Hagan Senior	Lecturer, Education Studies, St Mary's University College
Ms. Mary Hanafin TD	Minister for Education and Science
Dr. Judith Harford	Education Department, University College Dublin
Dr. Anne Heaslett	Principal, Stranmillis University College
Ms. Catherine Hennessy	Regional Coordinator, School Development Planning Support, Tionscnamh Pleanála um Forbairt Scoileanna
Dr. Tom Hesketh	Director, Regional Training Unit
Dr. Ivor Hickey	St Mary's University College
Mrs. Alison Higginson	Field Officer for Induction and EPD, North Eastern Education and Library Board
Prof. Joanne Hughes	School of Education, Queen's University Belfast
Mr. Bill Hunter	Visiting Lecturer, University of Ulster
Dr. David Istance	Project Leader, OECD, Centre for Educational Research & Innovation (CERI)
Ms. Dervil Jordan	Lecturer in Art & Design Education, Faculty of Education, National College of Art and Design
Ms. Bernie Judge	Education Officer, Teachers' Union of Ireland
Ms. Maxine Judge	Project Manager, European Studies, Southern Education and Library Board
Mr Mark Kirkpatrick	Senior Information Officer, Centre for Cross Border Studies
Ms. Aíne Lawlor	Chief Executive, Teaching Council of Ireland
Ms. Moira Leydon	Assistant General Secretary, Association of Secondary Teachers Ireland
Ms. Margaret Lucey	Development Officer, Civic-Link Education Programme, Co-operation Ireland
Mr. Gerry MacRuairc	Director of Masters Studies In Education, Education Department, University College Dublin
Ms. Ann Martin	Information and Communications Officer, Dundalk Institute of Technology
Mr. John McAllister	
Ms. Patricia McAllister	Event Organiser, Centre for Cross Border Studies

Mr. Eddie McArdle	Registrar, General Teaching Council for N.I.
Mr. Dermot McCartan	Senior Lecturer, St Mary's University College
Dr. Veronica McCauley	Lecturer in Science Education, NUI Galway
Dr. Billy McClune	School of Education, Queen's University Belfast
Mr. Ciaran McCormack	Vice-President, National Association of Principals and Deputy Principals
Ms. Liz McCrystal	Staff Tutor (Education), Open University in Ireland
Ms Marianne McGill	Programme Manager, Co-operation Ireland
Mr. John McGrath	Vice President, NAHT (NI)
Ms. Denise McKee	Lecturer, St Mary's University College
Ms. Sally McKee	Chairperson, General Teaching Council for NI
Ms. Hilary McLean	Schools' Liaison Officer, Southern Education & Library Board
Ms. Marie McLoughlin	National Co-ordinator, Primary Curriculum Support Programme
Prof. Richard McMinn	Staff Tutor (PGCE), The Open University in Ireland
Ms. Roisin McPhilemy	UNESCO Centre, University of Ulster
Ms Alison Montgomery	Field Officer, North Eastern Education and Library Board
Ms. Yana Moore	Head of Education, St Patrick's College
Dr. Mark Morgan	Southern Education & Library Board
Mr. Tom Mullan	Post Primary Inspector, Department of Education and Science
Ms. Niamh Murray	St Patrick's College, Drumcondra
Ms. Bernadette Ní Áingléis	Teaching Fellow, School of Education, Queen's University Belfast
Ms. Réaltán Ní Leannáin	Senior Official, Education Irish National Teachers Organization
Ms. Deirbhile Nic Craith	Associate Vice-President, Academic, Department of Education and Professional Studies, University of Limerick
Dr John O'Brien	Director, Drumcondra Education centre
Ms. Eileen O'Connor	Research Associate, University of Ulster
Ms. Una O'Connor	Head of Education, Faculty of Education, Mary Immaculate College
Dr. Teresa O'Doherty	St Patrick's College
Ms. Margaret O'Donnell	Education Department, University College Dublin
Ms. Elizabeth O'Gorman	Lecturer, School of Education Studies, Dublin City University
Mr. Joseph O'Hara	Association of Secondary Teachers, Ireland
Ms. Bernadine O'Sullivan	Project Officer, DICE Project
Ms. Astrid Pérez Pinán	Director, Centre for Cross Border Studies
Mr. Andy Pollak	NI Branch Committee Association of Teachers & Lecturers
Mr. John Pollock	



Mr. Stanley Poots	Vice-President, Ulster Teachers' Union
Prof. Rosalind Pritchard	Professor of Education, University of Ulster at Coleraine
Dr. Margaret Reynolds	Director, Education Faculty, St Mary's University College
Mr. Norman Richardson	Senior Lecturer in Religious Studies, Stranmillis University College
Ms. Emer Ring	Department of Education and Science
Ms. Hilary Roche	Head of Education, Froebel College of Education
Dr. Sean M Rowland	Executive Chairman, Hibernia College
Mr. Peter Scott	Member, N.A.S.U.W.T.
Dr. Caryl Sibbett	School of Education, Queen's University Belfast
Mr. Paul Sloan	Staff Officer, Department of Education (NI)
Dr. Ron Smith	Research Associate, University of Ulster
Mr. Eamon Stack	Chief Inspector, Department of Education and Science
Mr. Peter Stevenson	Senior Lecturer, Business Studies, St Mary's University College
Prof. Keith Sullivan	Head of Education Department, National University of Ireland, Galway
Mr. William Thompson	
Mr. Eugene Toolin	Head of Education, St Angela's College
Dr. Pauric Travers	President, St Patrick's College, Drumcondra
Ms. Anne White	National Co-ordinator, NCTE, Dublin City University
Dr. Eileen Winter	Coordinator of Special Needs, School of Education, Queen's University Belfast
Ms. Patricia Wroe	President, Association of Secondary Teachers, Ireland
Ms. Mary Yarr	Language Adviser, Craigavon Teachers' Centre

## **Sectoral Conference Reports**

Funded or part-funded by SCOTENS 2007-2008





## ART AND SCIENCE: MOVING TOWARDS CREATIVITY IN EDUCATION

**St Mary's University College, Belfast**  
**28-29 February 2008**

**Dr Ivor Hickey and Mrs Deirdre Robson, St Mary's University College, Belfast, and Dr. Dónal O'Donoghue, Mary Immaculate College, Limerick**

### **Guest Speakers**

Professor Helen Storey, Helen Storey Foundation; Professor Tom Cross, University College Cork; Dr Lizzie Burns, Science to Life.

### **Objectives of the Conference**

We are currently undergoing a dramatic change in our understandings of and approaches to education. In the age of electronic databases and instant access to information, the skills of learning are taking increasing precedence over the simple accumulation of knowledge in education. Among the most exciting aspects of this approach are interactions between subjects traditionally seen as separate entities and the recognition of the need for learning and teaching to be highly creative activities.

Art and Science are a prime example of two subjects that are beginning to be regarded as having much in common, and their compatibility has begun to show dividends at curricular level in schools.

The intention of the conference was to bring together individuals in Initial Teacher Education (ITE) and practicing teachers on the island of Ireland with shared interests in the fields of art and science education. This would allow a sharing of information and hopefully produce a network across teacher education that would be enabled to champion the cause of *sciart* in the development of educational methodology on this island.

The conference was specifically structured to illustrate how the two subjects could work together in education. The opening session allowed all participants to view a display of work from the NESTA-funded Leonardo Effect pilot in which 1,000 children in primary and post-primary schools across the British Isles were educated through a pedagogy that synchronised the two subjects. The three main speakers were chosen to typify a broad range of co-operation between artists and scientists. Professor Tom Cross spoke from the perspective of a professional scientist working in collaboration with a professional artist. Dr Lizzie Burns linked her experiences of being both an artist and a scientist and examined how these could be used in combination to engage pupils in science education, and Professor Helen Storey presented her mutually beneficial collaborations with science from the standpoint of design and art.

## Participants

Beggs, Jim	St Mary's University College
Berrios, Ida	Parkhall College, Antrim
Busch, Catherine	Rathmore Grammar School, Belfast
Paula, Campbell	St. Joseph's Primary School, Crumlin
Cassidy, Fiona	St Mary's University College
Church, Stewart	Bio-Imaging, Queen's University Belfast
Clare, Helen	Creative Writer
Connolly, Clare	St Mary's University College, Belfast
Cross, Tom	University College Cork
Curry, Audrey	Stranmillis University College, Belfast
Dowling, Siobhan	University College Cork
Elliot, Denise	Stranmillis University College, Belfast
Ellison, Barbara	Artist
Ennis, Harriet	Stranmillis University College, Belfast
Finn, Peter	St Mary's University College, Belfast
Flanagan, Mary	St Mary's University College, Belfast
Fleming, Karen	University of Ulster, Belfast
Francis, Pamela	Rathmore, Grammar School, Belfast
Hickey, Ivor	St Mary's University College, Belfast
Hoey, Mary	HMle Glasgow
Magennis, Geraldine	St Mary's University College
McClintock, Emma	University of Ulster
Murphy, Cliona	St Patrick's College, Dublin
Murphy, Colette	Queen's University Belfast
O'Hanlon, Frances	Loreto College, Omagh
O'Hanlon, Graine	Loreto College, Omagh
Reynolds, Margaret	St Mary's University College, Belfast
Robson, Deirdre	St Mary's University College, Belfast
Storey, Helen	Helen Storey Foundation
Sweeney, John	St Mary's University College, Belfast
Torrens, Patricia	Parkhall College, Antrim
Tracey, Shelley	Queen's University Belfast
Travers, Agnes	St Joseph's Primary School, Crumlin
Veale, Orliath	St Patrick's College, Dublin
Whyte, Emer	St Peter's National School, Bray





## Programme

### Thursday 28 February

1.00 pm	Buffet Lunch and opportunity to view the Leonardo Effect Exhibition
2.00pm	Welcome and Introduction
2.30 - 3.30	Session 1: Professor Tom Cross
3.45 - 4.15	Group Workshop I
4.30	Workshop Reporting
7.30pm	Conference Dinner

### Friday 29 February

9.45 -10.45	Session II: Dr Lizzie Burns
11.00 -11.45	Group Workshop II
12.15-1.00	Session III: Professor Helen Storey in Conversation
1.00 pm	Lunch and Conference Review

### Synopsis of Talks

#### Professor Tom Cross, Molecular Zoologist

The opening contribution to the conference was made by Professor Tom Cross who spoke of his zoological work on jellyfish which was carried out in conjunction with his artist sister Dorothy. This resulted in the production of their iconic sciart film *Medusae*. The film represents a complete merging of science with art and this set the environment for the conference.

Professor Cross emphasised the role of imagination in science as being vitally important, and explained how the Wellcome Trust-funded *Medusae* project originated. The project developed from his interest in the biology of jellyfish, and his sister's artistic interest in jellyfish and the work of Maude Delap, a self taught naturalist who studied jellyfish and other marine creatures on Valentia Island in the late nineteenth and early twentieth century.

He described the anatomy and physiology of *Chironex fleckeri*. For its size, this jellyfish is the most venomous of all marine creatures, and is also the fastest swimming member of the jellyfish group. Its natural habitat is the tropical seas round the north of Australia. The anatomy was described in exact zoological detail and it was noted that the eyes were very well developed but connected only to a network of nerves rather than to a brain that would be presumed to be needed to process their signals. Two aspects of *Chironex fleckeri* were dealt with in detail, the stinging process and mechanism of propulsion.

The stings of *Chironex fleckeri* can be fatal if a victim is not treated in a hospital within 30 minutes. Micrographs of the stinging cells were shown before and after



firing and it was highlighted that the process of releasing the sting was the fastest cellular movement in the animal kingdom. Propulsion works through a mechanism similar to the jet engine. Its analysis was the object of the scientific study. The methodologies used in this part of the study were briefly outlined. These included physical measurements that were analysed in a manner that can also be used to study human swimming, and using fluorescent dye to observe the vortices produced in the wake of the swimming jellyfish.

After this introduction, the film was shown. Summarising the *Medusae* in words is a difficult if not impossible task. It would be easier to state what it is not. It is not simply a way of making hard-nosed scientific facts more palatable for the non-specialist. Nor is it just an artwork made more informed by the inclusion of some scientific facts. The film achieves both these goals with ease but the synergism of the two disciplines produces something unique that benefitted the audience at many levels.

The story intertwines footage of current studies of the biomechanics of jellyfish with timelines of separate studies of marine creatures. Initially, examples of the exquisite glass replicas of creatures produced in Germany in the nineteenth century by Leopold and Rudolf Blaschka that link directly to the work of Haeckel are shown in some detail. This leads onto the story of Maude Delap which is central to the film.

The film opens with white-on-black images of swimming jellyfish with the haunting accompaniment of Irish hymns being played on a glass harmonica, and takes the watcher through a series of visually compelling sequences of Valentia Island and old still photographs of Maude Delap. The beauty of both the natural world and the artefacts made to represent it are contrasted with the spoken commentary that deals with factual aspects of jellyfish evolution and anatomy. Specific scientific terminology finding itself completely in place within clearly art-based imagery.

The few personal facts we know about Maude Delap, the practicalities of her science and the timeline of discovery are simultaneously conveyed in both words and through images of her Edwardian house in its current dilapidated state. The use of the song "Come into the Garden Maude" in a tenor voice added to the historical perspective.

The juxtaposition of sensitive imagery and precise science about the metabolism, movement and life cycle of *Chironex fleckeri* led into the start of the scientific investigation, and as often in such activities the first steps were dogged by failure caused by factors outside the control of the investigators. Water temperature changes meant that *Chironex fleckeri* was absent during the first visit to North Queensland and a second species *Chiropsalmus* became the subject of study. The humdrum functional nature of the scientific laboratory is presented with very beautiful shots of swimming *medusae*, the one again complementing the other.





Dialogue between artist and scientist on the behaviour of the creature and the nature of sleep posed interesting questions in both disciplines.

A seamless transportation in time and place shifted the focus to a fascinating study of the meticulous scientific recording and observational skills of Maude Delap in County Kerry. The appearance of original tables from her notebook lent authenticity to the reading of her written observations. It also indirectly pointed up the importance of observation in both art and science, as is often seen in da Vinci's work where his anatomical drawings inform his art work and it is sometimes difficult to tell one from the other. These descriptions of Maude Delap's work merged into modern images of marine creatures, underlining an ancient and modern theme and the historical progress of science.

A return to Australia allowed the capture of *Chironex fleckeri* and the study to recommence. This is followed by a section of the film that is much more scientific although the interaction between the two disciplines is maintained. The music may help with this or it may be the visual impact of the jellyfish in movement. The sophisticated scientific recording of biomechanical movement, and even data collection and statistical analysis, do not jar with the overall intent, but again emphasise the timeline theme as indicated earlier in linking back 100 years to the work of Maude Delap.

The fluorescein-aided images of the vortices produced by the swimming jellyfish provided an example of how knowledge can be determined mathematically and can be understood through visual literacy, and highlighted the commonality between reason and aesthetic appreciation. Again there are echoes of da Vinci's work on vortices.

The film fittingly ended with a discussion between artist and scientist about what can and cannot be examined by science. In summing up Dr Cross raised two questions that he saw as fundamental to the relationship between art and science:

- Are there mutual benefits for both artists and scientists in working together?

He suggested that there may be more benefits for science in this partnership. The interaction provides science with an acceptable and optimal interface. This is not simply limited to improving the presentation of science but can lead into ways in which artists and scientists can work together to simplify the presentation of difficult concepts to the public. A major benefit to artists is that science may provide them with new sources of inspiration in nature.

- How do the approaches of the artist and the scientist differ?

He pointed out that science has a reasonably well defined way of proceeding – the scientific method – and asked whether there is an equivalent method in

art. Art appears to have no clear rules such as those associated with scientific research. His tentative conclusion was that it is more difficult to work in the area of art as it has fewer rules than are found in science. Finally he noted that some areas that were previously the domain of artists such as scientific illustration were now being replaced by photography. This however, is due to technical advances and not to one subject causing a diminution of the other.

#### **Dr Lizzie Burns: Science-based artist**

In her opening remarks Dr Burns described herself as a science-based artist; the meaning of this would become clearer as her talk progressed. In her opinion, art and science had some undoubted differences but also great areas of commonality. These included observation and the importance of keeping an open mind. It was important in both disciplines to see what was actually there, rather than what you assumed would be there from the basis of your previous knowledge and experience. She stressed that drawing was a really important element of observation. The sciences, in particular the life sciences, were a rich source of visual subjects that could be used by artists. The act of making art was similar to that of carrying out scientific research in that it asked questions. In science these are obvious, but the artist continually seeks out originality by asking what has not been done before. Creativity is a major bridge between art and science. Individuals working in both disciplines use creativity and imagination to solve the problems that arise in their work.

There are great benefits for any individual who combines the two disciplines. Viewing a topic from differing standpoints greatly aids the thinking process. She had often found that creating a painting had helped her to understand difficult scientific concepts. Art and science are about appreciating the wonder of life and both help individuals to express their understanding of the world in which they live. This led on to the capacity for self-expression. This is well recognised in artists, but scientists are also passionate about their work in ways beyond the analytical. Creating art allows for greater personalisation of the topic under study. Finally, from an educational standpoint, blending the two subjects engages learners and leaves them with a positive experience.

She went on to describe factors that had influenced her in relation to art and science. While at school she had the fortunate opportunity to take a year out, during which she had travelled widely with her parents in India and North Africa. Throughout this time she kept a diary and accompanied the daily entries with pictures. She showed several of these including a dead geko being carried off by ants which she had completed at the age of eleven. Others were of snails and cattle and she also showed a portrait of her father that she had painted at the age of 15. During her later teenage years she was profoundly influenced by the work of Salvador Dali: in particular, his 1963 painting 'Galacidalacidesoxiribunucleicacid' which he had painted in response to the discovery of the structure of DNA by Watson and Crick. She emphasised the way in which the painting held secrets about selves that could be learnt through





science. The chemical bond structures were drawn as people shooting at each other, showing the tension in the molecular structure.

She then posed the question “How have I crossed the boundaries between art and science?” She had felt torn between the two subjects but chose to take a degree in biology while continuing to paint as a hobby. Her research career focused on cell biology, a particularly visual area of research, but she eventually went on to link the two subjects by developing a career as a science-based artist. This has involved the making of sciart and also using the combination to interpret science and stimulate learners.

She discussed a series of micrographs of human chromosomes made using either scanning electron microscopy or fluorescence microscopy. These structures had an aesthetic beauty, but they represented images of dead, fixed material and had no colour of their own. This had been added afterwards. A series of her early paintings were shown where imagination had been used to make the chromosomes come to life with a movement and dynamic that could not be seen in the micrographs. She commented that these had been useful in explaining science to non-specialists and she had gone on to produce other images that dealt with complex scientific topics. Some of these were used as covers for well known scientific periodicals including the *EMBO Journal* and *Trends in Biochemical Sciences*. Her method was to read the relevant scientific papers in detail but then to set these aside before starting to paint. A similar approach related to a commission from a nephrology journal. Here a painting of a kidney was produced directly from a dissection but emphasising that through its structure the kidney was an object of beauty.

These paintings were associated with the need for scientists to communicate, and she emphasised how important this was both at the individual level and from the standpoint of funding bodies. Dr Burns explained how she had obtained support from the Medical Research Council for a two year project in which she visited 24 laboratories in order to represent the research of the individual groups through the medium of art. She went on to describe some of the work from the Medical Research Discovered collection. Images included the gonadotrophin releasing hormone. She explained that although this was an artwork in its own right, it was also similar to a textbook figure of the molecule with each atom being represented by conventional colours. Interestingly, none of the scientists present were able to recognise the molecule. The shape and functionality of the hormone came across strongly from the image. Other images were linked to quotes from the researchers that reinforced the personal aspect of the investigation. This approach allowed questions to be asked and discovery to be celebrated even where the images were dealing with disturbing subjects such as disease and death.

Moving on to work with children, Dr Burns described how some of these images were capable of developing children’s understanding of what goes on within


their bodies in a way that biology lessons may not be capable of. Paintings of the AIDS virus were capable of representing its capacity to cause suffering in ways that electron micrographs do not. Images of the malaria parasite life cycle elicited positive responses from children in India who were themselves suffering from malaria. Similarly, paintings of arteries in the heart blocked with fat allowed children to discuss healthy lifestyles. Particularly interesting were images of the brain and disorders such as strokes. Images of neuronal synapses in which the colours represented the flame spectra of sodium and potassium conveyed much more about sodium potassium pumps than diagrams from science textbooks. The theme continued with hippocampus in taxi drivers and drugs used in treating brain disorders. Here, paintings of the chemical structures of drugs lead on to the development of jewellery based on the chemical structures of molecules within our bodies.

She then turned to specific applications of the sciart approach in classroom situations. The first example dealt with was the microscopic world around us in relation to Key Stage II of the Northern Ireland curriculum. Stressing the importance of images and their availability to the teacher from sources such as Google, Dr Burns stressed how viruses and bacteria, and their positive and negative effects on humans, could be developed in a fun way through the use of art. Work by several children was shown. Particularly noteworthy was a three-eyed virus which used its eyes to find its target cell. Other micro-organisms such as protozoa and diatoms also make suitable subjects, the symmetry of diatoms being suited to ceramic work. Working in this way allows children to make use of and exhibit their skills of imagination and observation. She stressed that children were asked to produce artwork about the organisms but not to simply humanise them by adding faces or other body parts. In addition, topics such as skeletons, particularly dinosaur skeletons, could initiate learning situations driven by children's questions. Representations of muscles used in moving an arm could be developed into flick books that brought the subject to life for pupils. Examples from Key Stage I classes involved sound and hearing, subjects that present some difficulty in schools. Examples included children's work based on painting favourite noises and building a giant ear.

The topics described above could be formally fitted in with areas of the curriculum such as Personal Social and Health Education and Healthy Eating. Dr Burns stated that she found work of this kind in schools was very rewarding as it was clear that it helped children to find science a more human subject. In addition, thinking skills and creativity were well developed. Teachers frequently reported that many children who did not usually shine in typical classes performed surprisingly well in this environment.

The approach was not limited to formal school education. Material from science festival activities where both adults and children were involved was displayed. This was based on a "Create a Cell Workshop" activity. Here the function of each part of the cell had to be understood and cells could be made in 3 D. The cells





were varied in nature and some were produced by families working together. One quote which accompanied a cell was particularly striking: "My cell has dull colours on the outside because it looks small and boring, but it is colourful inside because it is full of life." Similar challenges given to year 11 pupils to create model organs of whole bodies proved very successful in stimulating creativity and getting across scientific knowledge.

A series of tips for teachers wishing to apply sciart in schools included:

- Decide on a topic
- Try to think about the science in unconventional ways
- Keep an open mind
- Make sure you have plenty of images to start from
- Look for interesting science stories in the media
- Allow pupils to come up with ideas and to be creative
- Collaborate with art teachers
- Continually encourage
- Challenge stereotypes
- Invite a local scientist to answer questions

The work can be carried out in groups or individually as the children wish, but aim for a final exhibition or some way to showcase their work. For many topics in science this approach will be much more beneficial than asking pupils to give talks, where individuals can hide behind the jargon of the subject, allowing the shortcomings of their knowledge to be masked.

The presentation concluded with a brief review of Dr Burns' current project. This is entitled 'The Brain' and involves learners from primary, secondary and special needs backgrounds. Children are informed about the brain and how it functions. Questions such as "What would happen if this part was not working?" are posed. The children write down their ideas and opinions alongside the paintings and sculptures they produce. The audience were shown a series of pictures and quotes. These indicated that not only had the children greatly enjoyed their activities, but that they were expanding their knowledge of the working of the brain.

#### **Professor Helen Storey: artist and scientist**

Professor Helen Storey received a rapturous reception from the gathered audience in acknowledgement of her international reputation in the fields of fashion, sciart and education. In the welcoming introduction Deirdre Robson said: "Despite leaving school with one 'O' level, Helen is astonishing in her achievements, which include an international reputation as a designer and artist, four professorships, collaborations with some of the most accomplished scientists working today and her work with young people." Reading from Helen's autobiography she added: "There is little in the educational process to give an artistic child a sense of their place in the world, or indeed the prospect of a

job.....as a teenager there were few opportunities to feel good at much.” Yet she concluded: “Rarely do young, creative people, once given the opportunity to use their gifts, turn away from the challenge.”

Professor Storey gave a fascinating account of her journey from fashion design in the 1980s through to sciart today, by discussing some of her most pivotal pieces of work and the collaborations she has been involved in, such as Primitive Streak, Mental, Wonderland and Ideas that can Change the World. She said that even during her period as a very successful fashion designer there were indications of a curiosity about science and creative expression far beyond the commercial: “Over the years of building the Helen Storey fashion brand there were moments that often bore no relationship to sales or profit margins, but were little beacons of light to me as a creative person.” Her first sciart collaboration was initiated by her sister Kate, a developmental biologist who “showed me her world.”

‘Primitive Streak’ was one of the first sciart partnerships funded by the Wellcome Trust. It consisted of a collection chronicling the first 1,000 hours of human life in textiles and fashion. ‘Cell Division 1.5 – 4 Days’ was a typical example of the work, involving 27 pieces taking the viewer on a journey from fertilisation to the recognisable human form. Not only did Primitive Streak tour extensively in seven countries, but it also had an educational dimension involving schools encouraging young people to work across disciplines. In collaboration with Creative Partnerships (Arts Council England) it has been used as a blueprint for a ‘Creative Lab,’ a concept which is now being replicated across the UK. At this point the Helen Storey Foundation was founded, a not-for-profit organisation promoting creativity and innovation that allowed Helen and her business partner to continue working in this way by seeking external support.

The next theme presented was ‘Mental’, a five part work that explores key emotions present during the creative process. It was autobiographical in nature and resulted in an interactive exhibition where participants could attempt the same exploration, answering questions and creating layers of answers unique to them. Professor Storey said: “I often think of creativity as a place of refuge, and that children who occupy the art room instead of the playground at lunch time experience that.” The death dresses displayed as installations in ‘Mental’ explored issues such as loss of fertility and fear of death.

Her most recent collaborative project, ‘Wonderland’, undertaken with the distinguished polymer scientist and nanotechnologist, Professor Tony Ryan of Sheffield University, has a strong ethical element, and was inspired by quantum mechanics. It was while trying to read a book about Quantum Mechanics that the idea for this project suggested itself. “Coincidentally at the time I had come to a creative dead end on a packaging design project I was working on. As sometimes happens, seemingly from nowhere, the idea for a ‘disappearing bottle’ suggested itself: a bottle that would have an intelligent relationship with its





contents, which would know it was no longer needed when the contents were gone and would shrink or disappear all together.”

This suggested a somewhat “fantastical conversation between bottle and contents.” However, Professor Ryan thought it was not so fantastical and thus embarked on a process whereby it became easier to secure funding for developing the idea as art rather than science: dissolving dresses rather than water bottles. She described the dresses as a form of Trojan horse. ‘Wonderland’ began touring the UK in January 2008.

Professor Storey explained how she is passionate about how this kind of creative thinking – “thinking like a child” – should be encouraged in schools, so the germ of ‘Ideas that can Change the World’ was born. This educational dimension to her work has enabled children to enter into discourse with adults to discuss ideas, and has already led to at least one 15 year old already patenting an invention. She summed up successful art-science collaborations as “a meeting of minds,” a meeting that is clearly unlocking the potential in young people as well as art and science.

[www.helenstoreyfoundation.org](http://www.helenstoreyfoundation.org)

<http://www.showstudio.com/project/wonderland>

[www.sciencetolife.org](http://www.sciencetolife.org)

### Workshops

Two periods were set aside for small breakout groups of about five participants to discuss aspects related to the theme of the conference. Conclusions and ideas on these topics were then reported to the complete conference. The topics raised are listed below with a synopsis of contributions.

Topic	Points Raised
Creativity: the essential core of education?	In the beginning we are all creative. However there are constraints at secondary and third level education such as assessment. To foster creativity in education we need creative teachers and creative learning opportunities; time to play; collaboration between groups to allow for creative thinking; questioning and acknowledgement that we don’t know all the answers
How can educators promote creativity?	Outdoor activities such as gardening; free play; adventure; explore/investigate, time to be



	<p>creative; interactive-hands-on learning; open ended activities; learning from other countries' different approaches e.g. Reggio Emilia and Steiner schools</p> <p>Importance of informing ourselves of what is working in other places/situations. Can it work here – does it depend on different factors?</p> <p>Challenge for teachers to promote creativity all the time.</p> <p>Does promotion of creativity require/ depend on resources or is it about thinking creatively and using what is free and readily available in the natural environment?</p> <p>Value of bringing in outside experts/visitors/professionals and allowing children to learn through working with others on a regular basis rather than in once-off events.</p>
Identifying progression of creativity in learners	<p>Inspiration; risk taking; coping with uncertainty; confidence; using more of your brain; play; practice thinking; willingness to express ideas; making connections; wider spectrum of interests; self assessment.</p>
Comparing scientific and artistic methods	<p>Similar investigative processes carried out in science and art</p> <p>Both approaches involve reflection and evaluation</p> <p>Both areas are experimental and often involve pushing the boundaries, taking risks and breaking rules in the pursuit of new knowledge/ understanding to create something unique.</p> <p>Ethical issues have to be considered. Some discoveries are by accident rather than by design; valuing the unexpected</p> <p>Sciart not new (Leonardo da Vinci)</p> <p>Science education – taught as a social science?</p> <p>People's perceptions are challenged as to what art encompasses – What is art?</p> <p>Move away from teacher being regarded as bank of knowledge towards teacher as facilitator</p> <p>Science and art complement one another: linked not separate spheres.</p>

Are there constraints on imagination in our educational processes?

Without imagination you cannot ask the questions you need to.  
Can you teach science without imagination? Yes, but it will be badly done.  
The exam system constrains both art and science.  
Art isn't valued or understood for the type of thinking it promotes.

Role of creativity in science versus creativity in science education

Does curiosity lead to imagination? Do we have to promote curiosity? Does curiosity decline with age?  
Imagination is harder work as an adult. Imagination requires thinking outside the box and we don't allow this to happen in school. Learning outcomes are set. We want to get to a set place or point. We need to give children more opportunity for open-ended thinking.  
Is creativity the role of our education system? How many young people see art and science as providing careers? Is there a big difference between science research and science education? There is certainly more of a division between research and education than there used to be. The biggest hindrance to creativity is the curriculum and examinations system. Some exam boards were described as being rigid. You can never ask the questions you need to without imagination, and you won't stimulate interest without imagination.  
Applies from primary level through to higher education.

#### Wiki

The importance of maintaining future links between the various groups of art and science educators who attended the conference was stressed. To that end an on-line Wiki has been established. This is open not only to those who attended the conference, but to anyone who is interested in the topic of the conference and can be accessed at <http://sciarteducationireland.wikispaces.com/>.

#### Acknowledgements

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## **Research and Exchange Reports**

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## DIGITAL VIDEO AS A TOOL FOR CHANGING ICT LEARNING IN SCHOOLS AND TEACHER EDUCATION

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### ***Learning with Moving Images: Digital Video in Education and Teacher Education seminar***

This seminar was one of the principal outputs of the above research project. There has been a longstanding educational interest in the potential of pictures and moving images to enhance student learning. At different times over the last 100 years, this interest has been reflected in educators firm belief in the power of pictorial flashcards, the film projector, television and the contemporary interest in digital video. This interest in DV in education is part of a now decade long investment in ICTs in both parts of Ireland. In this historical context, given the more interactive and dynamic features of DV compared to previous, more static image-projecting technologies, what is its potential in teaching and teacher education?

The SCoTENS *Learning with Moving Images: Digital Video in Education and Teacher Education* seminar took place in the Grand Hotel, Malahide on May 22nd and 23rd 2008. The seminar was attended by 17 practitioners from the Republic of Ireland and Northern Ireland. The participants represented a broad range of organisations including universities, teacher training colleges, Education and Library Boards and NGOs.

The two days combined a series of inputs from sector leaders with an opportunity for the group to share ideas, experiences and hopes relating to the use of digital video (DV) in education and teacher education. An initial input from the organising group seeking to explore the general terrain of DV use North and South included a report by Linda Clarke on a pilot project in which student teachers were given the opportunity to undertake critical reflection on their practice using a video diary format. This was followed by two focused inputs. The first, facilitated by Paul Conway of UCC and Mathias Fiedler of DICE, sought to examine DV as an enabler of classroom teaching and research. The second focused input, provided by Bernard McCloskey of the Northern Ireland Screen Commission, examined the implications for learning when using moving images across a range of educational settings.

The formal inputs were complemented by a number of structured discussion

sessions where participants were asked to reflect on:

- Their current use of ICT in their professional practice
- Their current use of DV in their professional practice
- The changes in their practice in recent years
- The challenges that have been faced when attempting to integrate DV into their practice


Perhaps unsurprisingly there were a wide range of responses to the questions posed. With regard to the use of ICT in current educational practice North and South, what was particularly noticeable was the ubiquity of technology in all aspects of teaching and learning. While it might be argued that the seminar participants were enthusiasts who could be expected to be early adopters, the wide ranging discussions that took place indicated that ICT has become embedded in most institutions and has been adopted and adapted by staff in a range of settings. Common applications included:

- Use of core functionalities such as e-mail to communicate with students and colleagues
- Development of an online repository of resources for ITE and CPD course participants in their own subject areas
- Use of the range of functionalities provided by VLEs to facilitate discussion, reflection, creation and sharing of resources

The discussion relating to the use of and the change in DV usage on the island of Ireland threw up a range of experiences. While all participants indicated that they made use of DV, their differing organizational needs led to a range of patterns and styles of integration. Thus, for example, those who worked in teacher support agencies and directly with schools had a focus that included aspects of media education, exploring the wider role played by digital media in society and helping students and teachers examine the technology with a critical and informed eye. They were also interested in examining the curricular implications of integrating DV as a technology into the everyday life of a school, and finally they discussed the skill sets needed for all stakeholders when attempting to integrate DV into educational settings.

Participants working in other sectors, particularly the ITE sector, shared many of these interests; they were also seeking to explore the potential of DV to enhance student teachers mastery of core teaching capabilities. This has resulted in many teacher education institutions integrating DV into microteaching and other skills development programmes. It has also seen a number of organisations using DV to bring vignettes from the 'real classroom' into the ITE programmes in an original and challenging manner. Finally student teachers, and indeed all teachers who have had the opportunity to engage with the organisations represented at the seminar, are being encouraged to develop their own materials using DV and to integrate them into their own professional practice. This requires educators not only to master the technology but also to understand the learning and curriculum





challenges posed by the integration of DV into their everyday teaching lives. The challenges of using DV were many and varied and again many were sector specific. However a number of common themes emerged. One of the major challenges faced was the perennial one of resources. While a number of participants specifically mentioned that they had sufficient resources in the DV area, most indicated that they struggled to meet the increasing demand for cameras, PSs, server space and so on, while budgets and available time stay static or indeed shrink. In some ways this is the most common problem faced by any organisation seeking to integrate technology in a meaningful way, and it is one that has been noted by previous SCoTENS conferences and publications. There was a general sense that where problems emerged institutions and individuals sought to address them to the extent that it was possible but didn't let obstacles stop them experimenting and innovating.

A second set of challenges centred around needs of those accessing the services provided. While most participants expressed a feeling that the core technological skills of many, although by no means all, had improved in recent years, there were broader concerns around the pedagogical and epistemological challenges being posed. For many taking part in the seminar, DV seemed to offer an opportunity to restructure the student – teacher relationship by allowing students become genuine creators of artifacts, and by extension, knowledge. While most could see the possibilities inherent in such an approach, there were real concerns about how this might be realised. For some, the major challenge revolved around selling the potential of DV to a range of audiences who quite often came from different educational cultures with at times competing priorities. These included student teachers who only wished to get through training, experienced teachers whose own professional outlook did not necessarily wish to incorporate a new approach defining learning relationships in classrooms, and colleagues in a range of organisations who might not agree with a restructuring of the pedagogical approach being promoted.

Another common challenge was posed by the need to develop critical interpretive skills when dealing with a technology that is rapidly expanding in terms of availability. As one participant put it: "Everyone has a phone, most can take videos, many can manipulate them and a lot come from families where video has been part of their everyday life. The problem we face is helping decide what is useful and what is not. Should be easy but then there is YouTube". In attempting to summarise these concerns, a number of participants indicated that they felt that what was needed was a new digital literacy to incorporate all aspects of technology usage and this should inform any future use of DV in educational settings.

The final part of the seminar saw the facilitators introduce the idea of developing a website specifically focused on supporting DV use in educational settings both North and South. There was a broad welcome for this and a range of suggestions

were made with regards to possible content. In general it was felt that the site should include sections on

- The utilisation and production of DV
- Visual literacy and the language of the moving image
- Equipment audits – including needs analysis, costings etc
- Ethical issues – including WebWise, safety issues
- Links to projects on the island, in the EU and in the worldwide educational community
- Accessing funding

Two other suggestions involved the establishment of a SCoTENS presence on YouTube and the facilitation of a discussion forum on the site. While there was interest in both of these, it was suggested that further investigations take place regarding the feasibility in terms of the former and the housekeeping issues that often arise when trying to create a vibrant discussion space online.

The eventual outcome of the discussions relating to the site was a commitment on the part of the organisers to design and pilot one by the time of the next SCoTENS annual conference.

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## SOCIAL JUSTICE EDUCATION IN INITIAL TEACHER EDUCATION: A CROSS BORDER PERSPECTIVE

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### Introduction

This paper provides a mid-term report on the SCoTENS funded Research project 'Social Justice Education in Initial Teacher Education: a cross border perspective'. The project focuses on the ways in which teacher education programmes and institutions seek to foster a social justice perspective in initial teacher education. Increased funding for and prioritisation of development education by government bodies including Irish Aid in the Republic and the Department for International Development (DFID) in Northern Ireland in recent years have enhanced opportunities for integrating development education or global educational content and methodologies in initial teacher education programmes, and in the formal education sector more broadly. These attempts to incorporate or indeed 'mainstream' development education are coupled with an increasing emphasis on notions of social justice more broadly within teacher education discourses and policies, scholarly articles, books and conference programmes, and in formal school curricula (North, 2006).

### What is Social Justice Education?

While the meaning of social justice is contested, social justice education typically involves highlighting social injustices at a local and/or global level with a view to motivating individuals and groups to envision, and work towards, a different future, based on a more humane and just vision of society, on both a local and a global scale (North, 2006). It is argued that if public understanding of injustices, crises and problems affecting people on a local and global scale is to be enhanced, there is a need for educators as well as young people to be critically engaged with such issues in school. Teachers, teacher educators and educationalists more broadly are in a unique position to draw attention to local and global crises and injustices that might otherwise be neglected or under-prioritised for a host of reasons.

There are a variety of forms of education which can be classified as falling broadly within the remit of social justice education as they share many overlapping concerns. These include, but are not limited to: inclusive education, citizenship education or education for democratic citizenship, multicultural and intercultural education, diversity education, development education and education for sustainable development, human rights education, global



education or the global dimension in education, and education for international understanding. While the specific priorities of each of these versions of social justice education may differ somewhat, each shares a concern with cultivating awareness of the nature and causes of injustice and inequality in the world, and is oriented towards effecting positive social change. As an approach to learning, therefore, social justice education is about both understanding and transforming the world in which we live.

This project has implications for the conceptualisation and practice of education, particularly from the point of view of how best to prepare those in initial teacher education to engage in meaningful dialogue with their own students about how they can contribute to a more locally and globally just future. Despite greater political and media devotion to global crises and issues in recent years, as well as recent attempts to mainstream development and diversity education in the formal education sector, the existing research-based evidence on social justice education and its related forms is limited (Smith, 2004). With this in mind, the present study was undertaken with a view to:

- Mapping existing provision and approaches to social justice, diversity and development education on both sides of the Irish border.
- Involving policy makers in the ministries on both sides of the border to connect the academic and policy perspectives on the issues.
- Gathering attitudinal data on social justice, development and diversity issues among student teachers in both jurisdictions and to compare the findings.

Four educational institutions which provide initial teacher education are involved in the project: Queens University Belfast, St. Mary's University College, Stranmillis University College and University College Dublin.


### **Methodology**

A preliminary mapping exercise of provision and approaches to social justice and diversity was conducted among those teacher education institutions and programmes directly involved in the study, for the purposes of informing the attitudinal dimension of the project.

A literature review was conducted with a particular focus on identifying key issues and challenges pertaining to the implementation of social justice education in formal educational settings.

A survey instrument was designed for the purposes of gathering attitudinal data on social justice, development and diversity issues among students in initial teacher education programmes at University College Dublin, Queens University Belfast, Stranmillis University College and St. Mary's College who have been exposed to content knowledge and methodologies relevant to development,





diversity and social justice issues. A combination of open-ended, likert-scale and rank-order questions were devised with the purpose of informing the following questions:

- What meanings do student teachers ascribe to social justice and development education?
- To what extent do student teachers embrace the values and ideals of social justice education?
- How much scope do they see for the incorporation of development education content in their classrooms?
- To what extent do they feel competent incorporating social justice education into their teaching?
- To what extent do they embrace active learning methodologies within the context of their classroom teaching practice?
- To what extent do they feel confident in their ability to effect positive social change?
- To what extent have they been involved in local and global development/social justice-related activities?

Specific items were included in the questionnaire to examine student teachers' perceptions and understandings of a range of issues including: the role and scope for development and diversity education in the curriculum; the perceived relevance of social justice education to one's own subject areas; attitudes towards migration, cultural diversity and racism; attitudes towards specific minority groups (e.g. Travellers); understandings of poverty; and attitudes towards social action, activism, and social change.

The questionnaire was distributed to a sample from two separate cohorts of students in initial teacher education programmes at each of the participating institutions.

### **Key Findings**

#### ***Mapping the terrain: Key priorities and challenges for social justice education on the island of Ireland***

Many strands of social justice education seek to provide deeper understandings of the inter-sectionality of local and global forces and to elucidate the relationship and relative impact of different aspects of globalisation. That dimension of social justice education concerned with development education or the 'global dimension' is arguably more relevant than ever before, as the economic, social, environmental as well as epidemiological aspects of globalisation are increasing enmeshed, resulting in a series of interrelated threats to humanity (Olssen, 2004). The complexity of the task for educators who seek to cultivate awareness of the effects of globalisation and the need for a global consciousness and collective social action in the face of an escalating range of issues which transcend national borders – such as climate change, HIV/AIDS and the threat of global terrorism – cannot be underestimated. Nevertheless existing

research about the teaching and learning of development/global issues in an Irish/Northern Irish context highlights a number of deficiencies and challenges that need to be addressed if students are to emerge from their schooling more inclined to challenge major global issues and injustices of this nature.

***Knowledge of, and engagement with, social justice issues among teachers***

In the Northern Ireland context, recent research examining current provisions and opportunities for the delivery of the global dimension in formal educational settings suggests that while a majority of primary school pupils enjoy learning about global issues, there was a lack of knowledge among 1 in 3 primary school teachers/principals regarding their understanding of the global dimension, as well as a perception among teachers and principals that existing supports and resources to support the global dimension were limited (Reynolds, Knipe & Milner, 2004).

In the Republic of Ireland context, recent research on teachers' interest, knowledge, and activism in relation to development and development-education reveals that less than one fifth of teachers regarded themselves as being well informed about 'Third World issues'. Furthermore, besides financial contributions to third world charities, teachers scored low on other forms of development activism (Gleeson, King, O'Driscoll, & Tormey, 2007). Findings of this nature suggest that while support for the social justice dimension amongst teachers and their students is generally high, barriers exist to ensuring effective teaching and learning in this regard.


Numerous related challenges to implementing development education in formal educational settings have been identified elsewhere in the literature. National curriculum and examination requirements, for example, as well as constraints on staff time within the context of an overcrowded curriculum, limit the degree to which critical engagement with development issues is possible (Smith, 2004). Relatedly, much has been written about the dangers of "add-on" or "add-and-stir" approaches to teaching about development and related issues such as interculturalism (e.g., Roman, 2003).

***Social justice methodologies and curriculum content***

The reliance on textbooks as the development education methodology most commonly used by teachers is also problematic (72% of teachers use textbooks most often in teaching about development issues in the Republic of Ireland), not least of which because textbooks are also perceived to be the most effective method of teaching development/global issues by less than five percent of teachers (Gleeson, King, O'Driscoll, & Tormey, 2007).

At least some of the development-related curricular content is also problematic, in the sense that it tends to privilege decontextualised and 'do-able' notions of development, and individualised solutions to what are in effect highly complex structural problems (Bryan, forthcoming). In at least some textbooks currently





being used in an Irish context, contrary to development education's stated goal of raising awareness of the underlying causes of poverty and "empower[ing] people to take action for a more equal world" (Irish Aid/Trocaire, 2006, p. 6), global awareness is oftentimes reduced to narratives which have the effect of positioning the Irish nation as a generous 'First World' donor to the 'less developed Third World', while at the same time neglecting to provide understandings of the structural dimensions of poverty and the underlying reasons for underdevelopment in the first instance. Analyses of this nature run the risk of depoliticising, and therefore of trivializing, poverty in the absence of a concomitant critical consideration of the structures and systems which cause and sustain poverty in the first place (Smith, 2004).

Relatedly, development-as-charity narratives, which promote the view that poverty and underdevelopment can be remedied through individual charitable donations, are also common in school textbooks. While not seeking to deny that individual financial contributions can make a difference to the lives of those in poverty, representations of this nature have the effect of engaging students in Ireland in a particular relationship to the poor, based on an image which identifies those in the developing world predominantly in terms of their dependency and need for financial assistance, thereby eclipsing the actual forces that produce and perpetuate poverty in the first instance (Leal, 2007). It is notable that donating money is the most popular form of development activism in which young people in Ireland engage, reflecting the development-as-charity motif alluded to above (Gleeson, King, O'Driscoll & Tormey, 2007).

Gleeson et al's study revealed that school is the second most important source of information that students have about the Third World (Gleeson, King, O'Driscoll & Tormey, 2007). This further underscores the need to critically engage with the nature and implications of the messages that are conveyed in formal educational settings.

### ***Educational interventions with a social justice orientation***

These aforementioned challenges raise important implications for teacher educators who strive to equip student teachers with content knowledge and methodologies that will enable their own students to reflect on how they can contribute to a more locally and globally just future. As mentioned, increased financial support for development education by government bodies in both jurisdictions in recent years have enhanced opportunities for integrating development education content and methodologies in initial teacher education programmes. These projects include a three-year DFID-funded 'Global Dimension in Education' project in the North and Irish Aid funded 'Development and Intercultural Education' (DICE) and 'UBUNTU Teacher education for Sustainable Development' projects in the South, as well as a host of other departmental or institutional initiatives funded through development education grants schemes. For example, a multi-annual development education grant from Irish Aid in the Republic has enabled the School of Education at UCD to enhance its social justice

offerings on the Postgraduate Diploma in Education programme through lectures and workshops which emphasise a range of active learning methodologies to facilitate student teachers' own pupils understandings of development and global issues.

While a host of recent initiatives provide enhanced opportunities for teacher education programmes to offer a variety of courses and units with a strong social justice orientation, such as inter/multicultural education, diversity education or development education, it cannot be assumed that socially and culturally responsive teaching will necessarily follow from student teachers' participation in such courses (Pohan & Aguilar, 2001). Teacher educators need to understand students' underlying values and ideas about diversity, their own experiences of development and social justice issues, and their understandings about local and global injustices and inequalities, in order to ensure meaningful classroom dialogue and to facilitate learning (e.g., Clarke & Drudy, 2006). It is with this in mind that a survey instrument was devised and distributed to those in initial teacher education programmes.

### **Survey Findings**

Preliminary findings from phase one of the study, which involved an initial round of data collection from a sample of students at each of the four teacher education institutions involved in the project, revealed the following:

#### *Levels of support for development education among student teachers*

- Generally speaking, student teachers are very supportive of, and responsive to, the idea of incorporating development education themes, values and ideas in their teaching.
- 74% either agree or strongly agree that development education should have a high priority in initial teacher education.
- 71% either agree or strongly agree that development education is relevant to all subject areas.
- Almost 70% agree or strongly agree that development education should be afforded higher priority within the school curriculum than is currently the case.

#### *Perceived competency in delivering development education content and methodologies*

- A majority felt confident in their ability to deliver development education content and methodologies, with almost 62% agreeing that they felt confident in their ability to teach about development and social justice issues.
- Only 11% did not feel that active and participatory learning modalities were practical in a classroom context.

#### *Attitudes towards social action*

- Student teachers are favourably disposed to the social action dimension of development education and are positive that a more egalitarian world order is





achievable.

- A substantial majority (over 80%) agreed that their role as an educator involved striving to help their students both understand social injustices as well as encouraging them to transform society.
- 72% agreed or strongly agreed that a more equal world is possible.

#### *Confidence in one's own ability to effect social change*

Student teachers' own sense of agency to effect positive social change has significant implications in terms of the extent to which they will in turn try to encourage their own students to do so.

- Student teachers are generally committed to ideas of social transformation, although they do not necessarily feel confident in their own ability to enact change.
- Only 1/3 of respondents felt confident in their ability to influence decisions affecting their local area and society more generally, whereas less than 25% felt confident in their ability to influence decisions affecting other parts of the world.

#### *Individual versus structural explanations of development and social justice issues*

- Student teachers tend to privilege individualistic accounts of racism which fail to address the complex interrelationship that exists between the interpersonal level and broader structural and political processes through which racism is enacted.
- Over 80% believed that racism is mainly the result of people's ignorance and lack of understanding of other cultures, whereas less than 40% believed that government policies were largely to blame for the intensification of racism in society

#### **Next Steps**

This mid-term update has highlighted preliminary key findings from the mapping, literature review and survey dimensions of this project. The final report will make specific recommendations as to how the study's findings can inform reflective practice as it relates to the teaching of social and global justice issues in initial teacher education. Once all the data from the second phase of the survey dimension of the study have been collated, further analysis of the data will be undertaken, including an analysis of similarities and differences in attitudes between students in Northern Ireland and the Republic of Ireland. It is anticipated that an online survey instrument will also be distributed to representatives of all teacher education institutions to develop a more comprehensive picture of the current scope of social justice education offerings at teacher education institutions and schools throughout the island of Ireland. This will give rise to publications in the coming academic year. Two seminars are also currently being planned for the 2008-2009 academic year which will provide


policy-makers, academics and practitioners with an opportunity to engage with the tensions and challenges of engendering global civic engagement amongst student teachers in both jurisdictions.

#### **Personnel involved in the project**

Dr. Audrey Bryan, School of Education, University College Dublin  
Dr. Marie Clarke, School of Education, University College Dublin  
Professor Sheelagh Drudy, School of Education, University College Dublin  
Professor Tony Gallagher, School of Education, Queens University Belfast  
Mr. Martin Hagan, St. Mary's University College Belfast  
Ms. Lesley McEvoy, School of Education, Queens University Belfast  
Dr. Margaret Reynolds, St. Mary's University College Belfast  
Dr. Ken Wylie, Stranmillis University College Belfast

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## BUILDING EFFECTIVE SCIENCE OUTREACH STRATEGIES NORTH AND SOUTH

**Dr Veronica McCauley, National University of Ireland, Galway**  
**Dr Christine Donegan, National University of Ireland, Galway**  
**Dr Kevin Davison, National University of Ireland, Galway**  
**Dr Sally Montgomery, W5 Interactive Discovery Centre, Belfast**  
**Dr William McClune, Education Department, Queen's University Belfast**  
**Dr Ruth Jarman, Education Department, Queen's University Belfast**  
**Ms Eileen Martin, Science Shop, Queen's University Belfast**  
**Ms Emma McKenna, Science Shop, Queen's University, Belfast**

The final report of this project will be launched as a SCoTENS publication at the 2008 annual conference.

## IASSEE ALL-IRELAND LONGITUDINAL STUDY OF STUDENT PERCEPTIONS OF HISTORY, GEOGRAPHY AND SCIENCE EDUCATION

**Ms Susan Pike, St Patrick's College, Drumcondra, Dublin**  
**Mr Richard Greenwood, Stranmillis University College, Belfast**

### May 2008 Update

**Participant colleges (Republic of Ireland):** St. Patrick's Drumcondra, Coláiste Mhuire Marino, CICE Dublin, Froebel College Dublin, Mary Immaculate College Limerick; **(Northern Ireland)** St. Mary's University College Belfast, Stranmillis University College Belfast, Queen's University Belfast.

This long-term project aims to examine the attitudes and experiences of student teachers to Geography, History and Science as they progress through their teacher education courses. As the data collection phase nears its end the initial findings of the research have already been the basis of numerous discussions amongst teacher educators from Northern Ireland and the Republic of Ireland. Phase 1 data has been written up as a peer-reviewed paper in *Irish Educational Studies*. Phase 2 of the data collection is complete, with the intention to use the data from the focus group interviews to inform findings from Phases 1 and 3. As outlined in the table below, the intention over the next few months is to work towards the publication of papers in each subject area. Further dissemination of the findings through conference presentations are also being planned, within and beyond Ireland.



	Date collection	Data input / analysis	Data presentation / dissemination
Phase 1 <b>Entry questionnaire</b> Autumn 2004	Completed	All data inputted and coded Subject analysis has commenced	Paper published: <i>Irish Educational Studies</i> 2007 Paper presented: Charney Manor Primary Geography Conference, Oxford, UK (February 2006) Susan Pike / Richard Greenwood Paper presented: Association of Science Educators, St. Mary's Univ. College Belfast (September 2005) Janet Varley / Susan Pike Paper presented: ECER, UCD (September 2005) Fionnuala Waldron / Colette Murphy Further subject based presentations: IASSEE (June 2008) Subject based papers under way
Phase 2 <b>Focus group interviews</b> Summer / Autumn 2005	Completed	Transcribed and coded Analysis under way	Data to be incorporated into final papers / presentations after exit questionnaires completed (from June 2008)
Phase 3 Exit questionnaire Summer 2007	Completed	Written responses transcribed	Data now inputted and coded Presentations and papers (from June 2008)
Summer 2008		Numerical data inputted	

#### Current priorities / activity

##### 1. Phase 3 Data collection:

Analysis of Phase 2 data

Development of categories from returned questionnaires – from June 2008

Dissemination of Phase 2/3 data via presentations and papers – from June 2008

##### 2. Subject area data presentation / dissemination:

Presentation of papers based on Phase 1 data at IASSEE Summer Conference at Queen's University, Belfast – June 2008

Prepare peer-reviewed papers based on Phase 1 data for submission to relevant journals – Autumn 2008

Members of IASSEE from each of the subject areas (geography, history, science) are currently working on presentation and papers in each area. Current activity includes analysis of data and literature reviewing. Presentations of findings will be made to the IASSEE Summer Conference in June 2008. Each subject area then plans to submit papers to relevant peer-reviewed journals from September 2008.

### **Timeline**

#### **June 2008**

- Subject area coordinators to meet re papers on phase 1 data
- IASSEE June conference with subject area papers

#### **September 2008**

- Draft articles in each subject area

#### **December 2008**

- Submission of papers to journals in each subject area

#### **June 2009**

- IASSEE June Conference

#### **From June 2008**

- Development of categories from phase 3 data
- Planning for use of phase 3 data

Members of IASSEE working on subject papers / presentations:

- Geography: Susan Pike, Richard Greenwood, Laura Walsh
- History: Fionnuala Waldron, Geraldine O'Connor, Paddy Madden
- Science: Cliona Murphy, Colette Murphy

Journals to consider

- *European Journal of Teacher Education*
- *Journal of Education for Teaching*
- *Journal of Geography in Higher Education*
- *Journal of Teacher Education (USA)*
- *Teachers and Teaching*
- *Teaching and Teacher Education*





## SCHOOL-BASED WORK IN THE NORTH AND SOUTH OF IRELAND: EXPLORING THE ROLE OF THE HEI TUTOR

**Dr Brian Cummins, Stranmillis University College**  
**Ms Bernadette Ni Aingleis, St Patrick's College, Drumcondra, Dublin**

This research project has been postponed until August 2008-May 2009.

## THE PROFESSIONAL DEVELOPMENT NEEDS OF TEACHERS WORKING IN THE AREA OF SPECIAL EDUCATIONAL NEEDS

**Professor Sheelagh Drudy, University College Dublin**  
**Ms Elizabeth O'Gorman, University College Dublin**  
**Ms Máirín Barry, University College Dublin**  
**Mr Bernard McGettrick, University College Dublin**  
**Dr Eileen Winter, School of Education, Queen's University Belfast**  
**Dr Ron Smith, School of Education, Queen's University Belfast**

The rationale for this research project is underpinned by several factors: the increasing diversity of students with special educational needs (SEN) attending mainstream schools and the legislative obligation to ensure that these students have an education appropriate to their needs.

The purpose of this project is to investigate the professional development requirements of those second level (post primary) teachers who have a specific remit to work with students who have SEN in mainstream school settings. With the inclusion of many more students with additional and diverse needs in mainstream classes, teachers at second level face ever increasing challenges as they work to meet the needs of the students on a daily basis. Second level teachers who work specifically with students with additional needs now work in a variety of support roles within schools. In order to carry out these roles successfully, teachers require professional development opportunities that enable them to develop the necessary knowledge, skills and competencies.

Findings from this study will draw from the experiences of current second level SEN practitioners, both North and South, to establish their professional development requirements across a variety of school-based roles.

The research will provide comparative information, North and South, on the roles of teachers working in this area. The project will also compare the professional development requirements of these mainstream post primary teachers, north and south. Thus, recommendations for future professional development programmes in special educational needs will emerge from this research with the possibility of future collaborative provision.

### **Aims of research project**

#### **The main aims of this research are:**

- To contribute to the knowledge base in the area of teacher education for special needs;
- To provide information for curriculum development in teacher professional development;
- To give direction in efficiently targeting resources in special education professional development.

#### **The main objectives of this research are:**

- To clarify the roles and functions of teachers working in special education in mainstream schools;
- To identify the professional development needs of special education teachers working in mainstream schools;
- To prioritize the professional development needs of special education teachers working in mainstream schools; and
- To develop recommendations for course programmes.

#### **The anticipated outcomes are:**

- To strengthen best practice currently in operation in the training of special needs teachers North and South;
- To provide guidelines for standards and competencies in the area of special education professional development North and South.

### **Outline of research project**

The research consists of four phases.

**Phase 1** Establishing the background context and research instrument design

**Phase 2** Conducting the research investigation

**Phase 3** Analysing the data

**Phase 4** Writing the report



### Revised Provisional Timetable

Phase	Area	Timeframe
Phase 1	Background	April 2007 – February 2008
Phase 2	Research Investigation	Sept 2007 – May 2008
Phase 3	Data Analysis	May 2008 – July 2008
Phase 4	Writing up of report	August 2008 – September 2008

**Progress to date: April 2007-June 2008**

#### **Phase 1: Establishing the background context and research instrument design**

This phase commenced in April 2007 with dialogue between the researchers, intended to clarify the core concepts and issues involved in undertaking a study across two neighbouring but different jurisdictional contexts. It was essential to ensure that the SEN discourse was common across both jurisdictions. This dialogue showed that while there were similarities, there were also some fundamental differences between the North and the South in the interpretation of core concepts and praxis in the area of special education. Initial consultations were devoted to clarifying the discrepancies inherent in the interpretation of terminology used in each jurisdiction. This process of the deconstruction of individually held assumptions and the creation of a shared understanding and language of communication is ongoing and is an essential component of a comparative study.

#### ***Literature Review***

An evaluation of reports, information and previous research in the area is underway. There are a number of sub-sections contributing to this piece: current practice in the education of students with disabilities, legislation pertaining to special educational needs, and teacher professional development. These topics are viewed from both a Northern Ireland and the Republic of Ireland perspective.

#### ***Research Instrument Design***

A substantial amount of time has been devoted to the development of the main research instrument, the questionnaire. This has entailed much discussion and redrafting in determining the questions for inclusion in the research. The first of these discussions were exploratory in nature and provided useful information in determining the context for further development. Subsequent discussions focused on the adjustments necessary to reflect the differences in the educational systems of Northern Ireland and the Republic of Ireland.

Questionnaires facilitating the elicitation of both qualitative and quantitative data were designed and a number of sections were piloted by experienced professionals working in the area. Additional work in refining these instruments was necessary. This in turn required further peer review of the instruments. This has been carried out on the questionnaires to ensure that the wording and format of the questions will deliver valid data.

An additional research instrument, a structured interview schedule, has been drawn up to elicit further qualitative data, allowing for more flexible, open-ended responses and to collect data on potential unforeseen dimensions of professional development needs in the area of Special Educational Needs. In drawing up the schedule in a dual site context, the need to ensure the gathering of comparable data across both educational systems has again been a challenge. The clarity and co-ordination of pre-interview information, participant agreement and the opening script, as well as the specific interview questions, has been achieved through numerous drafts and revisions and a series of pilot interviews with experienced personnel working in the area.

## **Phase 2**

### **Conducting the research investigation**

#### *Sample population*

Discussions have taken place regarding the research population sample North and South. Two separate SENCO support groups, each of approximately 50 teachers based in the North East and the Belfast Education and Library Boards, will comprise the Northern sample population. The Southern groups will be drawn from a countrywide group of LS/SEN coordinators. This sample will be representative of the North-South geographical and socio-economic diversity.

Work has been completed on the setting up a database of teachers working in the area of special education in the Republic of Ireland. Teachers who qualified in the area of special education at diploma and masters level in UCD formed the initial core of the database, and a great deal of work went into sourcing access to further numbers of teachers working in the field of SEN at post primary level, in a manner which respects privacy of information.

### **Structured Interviews**

Having finalised the schedule, a series of structured telephone interviews has been carried out. Five interviews were completed with SENCOs in Northern Ireland and ten with Learning Support / Resource Teachers in the Republic of Ireland.

Participants were contacted prior to interview to ensure their availability and willingness to participate in a recorded telephone interview. Having established agreement, a mutually convenient time was scheduled for each interview to be carried out. Interviews took approximately forty-five minutes and yielded a great deal of rich data. The audio tapes of these interviews are currently being transcribed preparatory to analysis.





### **Phase 3**

#### **Analysing the data**

In conjunction with the IT Support Services in UCD, investigation has begun on determining the most appropriate statistical analysis to use to analyse the quantitative and qualitative data which will result from the research investigation. The use of SPSS and MAXQDA is being investigated to determine their appropriateness and compatability in relation to the projected data. Training in the advanced use of the software packages is proceeding in order to ensure awareness of the usefulness and constraints of the software packages.

Remote response technology has been trialled with three groups in the RoI. A number of difficulties arose which give rise to questions regarding the viability and reliability of the data acquired and further consideration of the value of using such technology. While a number of benefits are attributable to the use of remote response technology, there are inherent complications which may beyond the scope of this project to resolve. It is projected that a set period will be devoted to attempting to resolve these issues before a final decision is taken whether to continue with the technology.

#### **General /Administrative**

##### **Progress to date**

A series of cross-border meetings between the members of the research team has taken place. This entailed visits to Belfast and Dublin. Frequent e-mails have permitted continuance of the professional dialogue and both text and phone calls have further supplemented discussions. Audio conference calls involving all members of the team have also been held, facilitating the sharing of information and progressing collaboration.

Central to discussions has been the nature of special education as it is conceptualised in both jurisdictions, the legal requirements in each context, a common discourse, and the development of research instruments appropriate for the North and the South. A number of additional challenges to the furtherance of the project emerged. The most important of these was the recognition that a considerable amount of research has been carried out with SEN personnel across all Education and Library Boards in the North. This has resulted in some potential resistance on the part of board administrators to having school-based staff again being asked to participate in research projects. This was resolved through discussion with appropriate board personnel and ethical approval was granted from two boards. Other minor challenges involving the ongoing availability of the research team partners due to job changes and research leave have been resolved successfully.

A specific fund base has been set up within UCD and the cost code 47 established for the purpose of monitoring expenditure on the project.



It is hoped that through judicious apportioning of the grant aid, it will be possible to allocate funds to the writing up of the completed research and the dissemination of the results of the research at national and international conferences.

## CROSS BORDER EXPLORATION OF CPD NEEDS OF HEADS OF YEARS IN A SAMPLE OF COMPREHENSIVE AND INTEGRATED SCHOOLS

**Ms Patricia Mannix McNamara, University of Limerick**  
**Mr Tom Geary, University of Limerick**  
**Dr Caryl Sibbett, Queen's University Belfast**

The research team for this project consists of three colleagues from the Republic: Patricia Mannix McNamara (research co-ordinator) Tom Geary and Eva Devaney (research assistant); and two colleagues from Northern Ireland, Caryl Sibbett and Willie Thompson. The project is progressing as expected.

### **Data Collection**

Once ethical approval was applied for and granted by the University of Limerick in January 2008 data collection began. Three of the four focus groups have been completed to date. Two focus groups were conducted in the Republic of Ireland in two comprehensive schools. The focus groups in the South were facilitated by the research co-ordinator and a colleague from the team. To date one focus group has been completed by the partners in Northern Ireland, facilitated by our colleagues there. The data that has been collected has been transcribed verbatim and data analysis is progressing. The final focus group data is to be forwarded after completion in June 2008.

### **Data analysis: emergent themes**

Although the analysis can only be preliminary until all data is analysed together, some comparative themes already are emerging. Given that analysis is currently underway this report can only give brief insight into some emergent themes.


### ***Changing needs***

Heads of years on both sides of the border are aware of the changing needs of their students and feel strongly the impetus to keep up to date with these issues.

### ***Pastoral role***

Even though pastoral care is addressed to some degree within curricula on both sides of the border, all year heads in the study still practice from a strongly pastoral care perspective and prioritise this for their role. The tension between holding a disciplinary role and the pastoral care one emerged for all participants;





however most appeared to have strategies to navigate this dilemma quite effectively.

The broad and ever increasing range of issues that year heads on both sides of the border appear to engage with daily meant that all participants articulated in some measure the need for role delineation and for professional development in this area. Clarity of role and function has emerged in the Republic as an important area in need of significant consideration. Many have strategies on how to make the role more effective within their own schools and mentoring of new year heads emerged as significant.

### ***Bullying***

Bullying was a theme that emerged as an area of focus among schools on both sides of the border. The multi-layered, complex nature of dealing with bullying, particularly as the manifestation and impact of the issue differs for each individual (and gender), meant that year heads have to be quite sensitive in dealing with bullying in their schools. One school in the study has a systemic and effective response which the recommendations in the full report will examine, and this may offer the other participating schools some support in comprehensively addressing school bullying.

### ***All-Island Forum***

An all-island forum where year heads can gain insight into best practice from other year heads and schools was suggested by many as an effective way to improve skills and increase sustainability and motivation. This was also seen in the South as necessary to achieve all-island (and jurisdictional) consistency with regard to the role of year head, something deemed by participants not to be in evidence.

### ***Conflict resolution***

The head of year role can bring with it some conflict. Participants in the South spoke of the difficulties that can arise when teachers and students become locked in negative interactions and they as year head are called upon to discipline the student. In Northern Ireland it was in dealing with parents that conflict emerged, with (while admittedly rare) dealing with aggressive parents being identified as a deeply stressful dimension to the role. The weight of expectation from parents and from colleagues emerged for both as a pressure. When self care was explored with participants, it was evident that while heads of year, both North and South, had effective stress management approaches to their work, they were unable to engage deeply with discussing self care or professional supports (other than additional skills training) that they could envisage supporting them in their work.

## EXAMINING ASSESSMENT PROCEDURES FOR TRAINEE TEACHERS: A COMPARISON

**Mr Justin Rami, Dublin City University**

**Dr Margaret Reynolds, St Mary's University College, Belfast**

This is a second project update for this project. It had been anticipated that the project would have progressed further by now, but there have been some unexpected delays. We have once again missed our window of opportunity to survey current trainee teachers.

### **Context**

The main purpose of the research is to gain understanding from each other's practice and develop a shared view of professional development from a practitioner point of view as well as an all-island policy perspective.

The primary outcomes of the research will be shared between both institutions, and if mutually acceptable, these findings will be disseminated through local, national and international education forums. It is intended that several academic publications could be drawn from the research all of which have shared copyright agreements publications, and if this application is successful SCoTENS would be acknowledged within the papers as one of the funders.


The Faculty of Education at St Mary's University College in Belfast and the School of Education Studies in DCU, Dublin have an existing relationship based primarily upon external evaluation and quality assurance in assessment. This process would help develop the relationship from a practice perspective and help provide a platform for further collaborations and research activities.

### **Project Update**

After some clarification and correspondence it was agreed that the two partners would meet to discuss the empirical aspect of the project. Due to the pressures of the academic timetables in both institutions, the project commencement was delayed somewhat.

A further team meeting took place in St Mary's College Belfast to begin discussions on investigating practices within teacher education in the area of assessment and examine and compare what is being assessed in relation to the competencies and professional development in two jurisdictions. The discussion raised several interesting questions for the research teams such as the actual nature of teacher training in both jurisdictions and the policy differencing.





A further set of objectives were set:

### **Objectives**

- Design a common questionnaire for students in both institutions to complete before the end of the second semester of 2008: These questionnaires are aimed at:
- Describing assessment practices and techniques in a range of teacher education settings;
- Comparing assessment techniques and tools in Ireland and N.Ireland;
- Examining if assessment methods in teacher training courses influence the students perception of assessment as a whole.

A further part of the research may include the investigation into the rationale behind the development of assessment standards in the UK and Ireland; primarily EU policy and the Bologna process.

This research will try to analyse data drawn for two main partners relating to the assessment of students in teacher training contexts. The research may form part of a larger research project involving the development of innovation in assessment in relation to quality assurance and professional development. The key researcher will draw from literature already developed from a three year pan-European project relating to quality assurance in practice-oriented assessment.

### **Revised Timescale**

- Questionnaires are to be drafted by 31 May 2008
- Questionnaires are to be agreed by both parties by July 2008
- Respondents identified by both parties
- Questionnaires are to be piloted in DCU by end of August 2008
- Questionnaires are to be circulated to respondents by October 2008
- Data collected and analysed by early November 2008.
- Research outcome report drafted for SCoTENS by December 2008.

## Conference, Research and Exchange Projects

Funded or co-funded by SCOTENS 2008-2009





## **A STUDY OF WORK-BASED LEARNING MODELS AND PARTNERSHIPS IN SUPPORT OF POST-COMPULSORY PROGRAMMES OF TEACHER EDUCATION.**

**Professor Gerry McAleavy, Mrs Celia O'Hagan, Mr Walter Bleakley, Ms Sylvia Alexander, University of Ulster; Mr Harry McCarry, Belfast Metropolitan College; Dr Ted Fleming, NUI Maynooth; Dr Robbie Burns, Dublin Institute of Technology.**

This research project will focus on:

- Identifying a sample of comparative programmes for the professional education of teachers in the post-compulsory, learning and skills [including adult education] fields
- Liaising with providers to investigate teacher education models of work-based reflective practice in the North and South of Ireland
- Considering the implication of post-compulsory teacher education and emerging national and professional standards
- Designing a website to support the project by hosting an online community forum for key discussion areas, survey instruments/e-questionnaires and project information for participating providers
- Hosting an online conference to disseminate key findings and establish a community of practice for future collaboration.

**SCoTENS grant awarded Stg £6,000**

## **MEASURING THE VALUE OF EDUCATION TECHNOLOGIES IN IRELAND: NORTH AND SOUTH [MVET-IRELAND]**

**Dr Conor Galvin, University College, Dublin and Professor John Gardner, Queen's University Belfast**

The research for this project will:

- Investigate and apply a novel approach to measuring the value of educational technologies in schools
- Contribute to the development of the international understanding of this issue by:
- Conducting an online survey of the capabilities of teachers in the pedagogic use of ICT
- Making site visits to the schools involved to conduct interviews with a vertical cross-section of school staff and students (semi-structured and/or focus group based).
- Developing with the schools a total cost of ownership statement relating to technology at each school
- Conducting document reviews at school and department level.

**SCoTENS grant awarded €6,100**

## **CONFERENCE TO DISSEMINATE FINDINGS FROM THE RESEARCH PROJECT: STUDENT TEACHERS' PERCEPTIONS AND EXPERIENCES OF HISTORY, GEOGRAPHY AND SCIENCE – AN ALL-IRELAND SURVEY**

**Ms Colette Murphy, Queen's University Belfast and Ms Susan Pike, St Patrick's College, Drumcondra**

This conference will:

- Provide an opportunity for the dissemination of findings from the current longitudinal research project: Student Teachers' Perceptions and Experiences of History, Geography and Science: An All-Ireland Survey
- Provide a forum for discussion of findings with policy makers and curriculum developers
- Provide a workshop involving senior researchers in which IASSEE members can consider ways to extend the level of analysis for phase 3 data
- Strengthen North/South links in pre-service teacher education and support the development of this and other projects and research in an all-Ireland context.

**SCoTENS grant awarded Stg £1,260**

## **A CROSS-BORDER COMPARISON OF STUDENT TEACHERS' IDENTITIES RELATING TO MATHEMATICS**

**Dr Patricia Eaton, Stranmillis University College and Dr Maurice O'Reilly, St Patrick's College, Drumcondra**

The aim of this project is to:

- Ascertain and compare the mathematical identities of primary school student teachers.

The objectives of this project are to:

- Briefly compare the mathematics curricula (4-17) North and South and provide a comparison of mathematics in initial teacher education
- Determine the mathematical identity of selected student teachers using a range of tools including the use of narrative
- Explore how narrative might inform good practice in mathematics education.

**SCoTENS grant awarded Stg £5,000**







## **CONSULTING PUPILS ON THE ASSESSMENT AND REMEDIATION OF THEIR SPECIFIC LITERACY DIFFICULTIES**

**Ms Louise Long, St Mary's University College, Belfast and Dr Michael Shevlin, Trinity College Dublin**

The objectives of this project are to:

- Consult with primary and post-primary pupils on their level of participation in the assessment and remediation of their specific reading difficulties
- Work with Northern Irish and Southern Irish research partners to understand what constitutes good practice in collecting and analysing research data in this area
- Provide opportunities for young people in Dublin and Belfast to exchange information about their learning experiences
- Empower the young people involved in this project in becoming more fully involved in designing, implementing and evaluating their education plans.

**SCoTENS grant awarded Stg £4,800**

## **STUDENT TEACHERS PERCEPTIONS OF THEIR COMPETENCE TO MEET THE NEEDS OF PUPILS WITH AUTISTIC SPECTRUM DISORDER IN MAINSTREAM PRIMARY SCHOOLS**

**Mrs Mary Greenwood, St Mary's University College, Belfast; Dr Patricia Daly and Ms Anne O'Byrne, Mary Immaculate College, Limerick**

The objectives of this project are:

- To ascertain how competent BEd primary students in their respective institutions perceive themselves to be in identifying the characteristics of ASD through the teaching element of the BEd course
- To establish how well prepared BEd primary students feel they are in addressing the needs of pupils with ASD through the teaching element of the BEd course.
- To ascertain how much BEd primary student competence in the field of ASD is enhanced as a result of their time spent on school experience.
- To investigate how BEd primary students could be helped to develop their teaching in the area of ASD while on school experience
- To examine data gathered from the BEd primary students so as to establish whether there are observable differences between students in the two jurisdictions in order to make comparison.

**SCoTENS grant awarded £3,358**



## **ENGLISH AS AN ADDITIONAL LANGUAGE (EAL) IN UNDERGRADUATE TEACHER EDUCATION PROGRAMMES IN IRELAND**

**Mr Frank Quinn and Mr Martin Hagan, St Mary's University College, Belfast and Dr Anne Ryan, Marino Institute of Education**

The object of this research project is:

- To carry out a comparative study of the provision for EAL in pre-service and continuing professional development courses in Ireland North and South by holding four meetings of the project team between St Mary's Belfast and Coláiste Mhuire, Marino.

The significant actions associated with the project include:

- A literature review of the field
- A comparison of the education contexts in each jurisdiction
- A review of the official policy context
- An identification of the opportunities available for professional development for teachers in schools
- A determination as to how EAL is structured into courses at the ITE phase in these two colleges
- A survey of attitudes to EAL and views on personal competence among BEd students in the final year of their ITE programme in both institutions
- A seminar to disseminate findings of the project.

**SCoTENS grant awarded £5,000**

## **LANGUAGE EDUCATORS CONFERENCE**

**Dr Eugene McKendry, Queen's University Belfast, and Mr Patrick Farren, NUI Galway**

The aim of this research conference is to organise and run a conference for 40-50 delegates drawn from language teacher educators, primary and post-primary, North and South, to be held in Queen's University Belfast.

**SCoTENS grant awarded £4,500**





## **INCLUSION AND DIVERSITY SERVICE: POST PRIMARY INITIATIVE**

**Ms Mary Yarr, North East Education and Library Board, and Mrs. Barbara Simpson, Trinity College Dublin**

This is a post primary extension of the successful primary research project Together Towards Inclusion. The objectives of this research project include:

- Focusing research into the needs of post primary pupils North and South for whom English is not their native language.
- Identification of common needs of pupils North and South for whom English is not their native language
- Identification and response to common challenges of pupils North and South for whom English is not their native language
- Addressing whole school and classroom challenges at post primary level North and South in this area
- Promotion of the inclusive post primary school and classroom
- Enhancing provision for the post primary sector working with pupils for whom English is not their native language
- Sharing models of best practice
- Dissemination of best practice at a conference for 120 delegates.

**SCoTENS grant awarded Stg £6,000**

## **AN INVESTIGATION INTO THE EXPERIENCES OF PRIMARY SCHOOL TEACHERS WITH REGARD TO THEIR TEACHING OF HEALTHY EATING GUIDELINES WITHIN THE CURRICULUM**

**Ms Elaine Mooney, Ms Eileen Kelly-Blakeney and Ms Amanda McCloat, St Angela's College of Education, Sligo; Ms Dorothy Black, University of Ulster**

The aim of this research project is to investigate/examine the perceptions, knowledge, attitudes and experiences of primary school teachers in their teaching of healthy eating.

Objectives:

- To complete a comparative study of nutrition education in the primary level curricula in Northern Ireland and Republic of Ireland with regard to progression of key concepts from school entry age to completion of primary education stage.
- To establish how teachers translate the syllabus into practice in their classrooms
- To document teachers experiences of teaching healthy eating and nutrition within their respective SPHE syllabi
- To determine levels of satisfaction with course content, teaching resources available, access to relevant information

- To identify barriers to effective teaching of the syllabus material and quantify issues of concern which are common to teachers within both jurisdictions.
- To examine experiences in relation to implementation of related nutrition intervention programmes incorporated into the curriculum
- To determine the supports required by teachers for enhanced teaching and learning of Healthy Eating Guidelines

**SCoTENS grant awarded €6,500**

## **DOCTORAL RESEARCH IN EDUCATION NORTH AND SOUTH – LINKS, CHALLENGES AND OPPORTUNITIES**

**Dr Dympna Devine, University College Dublin and Professor Jannette Elwood, Queen's University Belfast**

This research project will organise a North/South conference of doctoral researchers in education aiming to:

- Strengthen the links between doctoral researchers in education North and South.
- Encourage the formation of professional links among educators North and South who are at the earlier phases of their research careers.
- Highlight issues of mutual concern in doctoral research in education North and South.
- Enhance and develop the research skills of doctoral students through shared discussion and critique of papers presented.
- Encourage greater links between supervisors of doctoral research North and South
- Identify synergies across research themes among doctoral students that may lead to subsequent research proposals in education that will have a clear North/South dimension.

**SCoTENS grant awarded €4,700**

## **BUILDING NORTH/SOUTH LINKS IN WHOLE COLLEGE INITIATIVES IN GLOBAL JUSTICE EDUCATION**

**Mr Brian Ruane, St Patrick's College, Drumcondra and Dr Gerard McCann, St Mary's University College, Belfast**

The aims and objectives of this research project are to:

- Establish and develop links between the Centre for Human Rights and Citizenship Education, St Patrick's College and the Global Dimension in Education Project in St Mary's College



- Share practice in relation to 'whole college' approaches to the integration of a global justice dimension into initial teacher education
- Document current and potential pathways and opportunities for undergraduate and/or post graduate teachers to develop competencies in teaching for democratic citizenship in both colleges.
- Identify research needs in relation to the work of both centres and develop an appropriate plan in relation to initial teacher education and the global justice dimension in both colleges.

**SCoTENS grant awarded Stg £3,400**

## SCoTENS FINANCIAL POSITION

### SCoTENS Statement of Affairs

1 Feb 07 - 31 July 08

Balance Carried forward 1 February 2007

**£30335.64**

#### Income

DEL/DE	50000.00
DES	50000.00
Nuffield Foundation	20000.00
Conference Fees	9016.23
Income Received from SCoTENS Members	64657.84

#### Total

**193674.07**

Less adjusted figures from Account @ 31/01/07

**11368.00**

#### Total Income

**£182306.07**

#### Expenditure

Professional & Consultancy Costs	54494.05
Travel, Subsistence & Conference	31410.73
Mileage	569.15
Sundry Expenses	862.01
Photocopying & Printing	7638.78
CCBS Admin & Professional Services 30/6/07	44755.00

#### Total

**£139729.72**

Less adjusted figures from Account @ 31/01/07

**83948.00**

#### Total Expenditure

**£55771.72**

#### Net Surplus

**£156869.99**

CCBS Admin & Professional Services 30/6/08

**30828.50**

Amount pledged to Research projects

**79000.00**

Balance carried forward 1 August 2008

**£47041.49**