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Teaching
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Annual Conference
Institute of Education, University of London

5-8 September 2007

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Welcome to BERA 2007 and to this compendium of abstracts of TLRP presentations

At a glance guide to presentations from TLRP projects:

Thursday 6th September

- 9.00-10.00am:** Presentation: Future directions for student assessment (Assessment Reform Group)
- 12.45-2.15pm** Symposium Presentation: Student and Tutor Identities in the 'New' and 'Old' University: a critical sociological analysis of Widening Participation and the impact on students' and tutors' pedagogic experiences
- 12.45-2.15pm** Symposium Presentation: Learning to teach in post-devolution UK
- 2.00-4.00pm** Presentation: The Learning Journey: Young People's Experiences of Further Education
- 2.30-4.00pm** Symposium Presentation: Neuroscience and Education 1: Imaging and Experimentation
- 2.30-4.00pm** Symposium Presentation: Educational Research and Policy: Epistemological Considerations (I)
- 2.30-4.00pm** Symposium Presentation: Opening doors to mathematically-demanding programmes in Further & Higher Education 1
- 4.30-6:00pm** Symposium Presentation: Neuroscience and Education 2: Pedagogical Theory and Practice
- 4.30-6:00pm** Presentation: Techno-mathematical literacies in the call centre: Making visible the mathematics of selling a mortgage
- 4.30-6:00pm** Symposium Presentation: Educational Research and Policy: Epistemological Considerations (II)
- 4.30-6:00pm** Presentation: Different Strokes for Different Folks: Diverse Students in Diverse Institutions - Experiences of Higher Education
- 4.40-6:00pm** Symposium Presentation: Opening doors to mathematically-demanding programmes in Further & Higher Education 2

Friday 7th September

- 9.00 – 10.30am:** Symposium Presentation: Continuity and Change in Lifelong Learning: Insights from the 'Learning Lives' Project
- 9.00 – 10.30am:** Presentation: Students as Co-Researchers in externally driven research projects. Turnaround or tokenism?
- 12.15-1.45am:** Symposium Presentation: From the learning and skills sector to an equitable, effective and inclusive system?
- 5.00-6.30pm:** Presentation: Home and Away: risk, familiarity and the multiple geographies of the HE Experience
- 5.00-6.30pm:** Presentation: Initiating and Supporting Practitioner Research in Higher Education

Saturday 8th September

- 9.00 – 10.30am:** Presentation: Fit for purpose evaluation in education research should consider the requirements for establishing descriptive causation
- 9.00 – 10.30am:** Presentation: Northern Ireland beginning teachers' experiences of induction: the 'haves' and the 'have nots'

Thursday
6th September
9.00 – 10.30am

Future directions for student assessment (Assessment Reform Group)

Presenters: *Professor Richard Daugherty, Cardiff University, Professor Paul Black, King's College London, Professor Kathryn Ecclestone, Oxford Brookes University, Professor Mary James, Institute of Education, London, Dr. Paul Newton, Qualifications & Curriculum Authority*

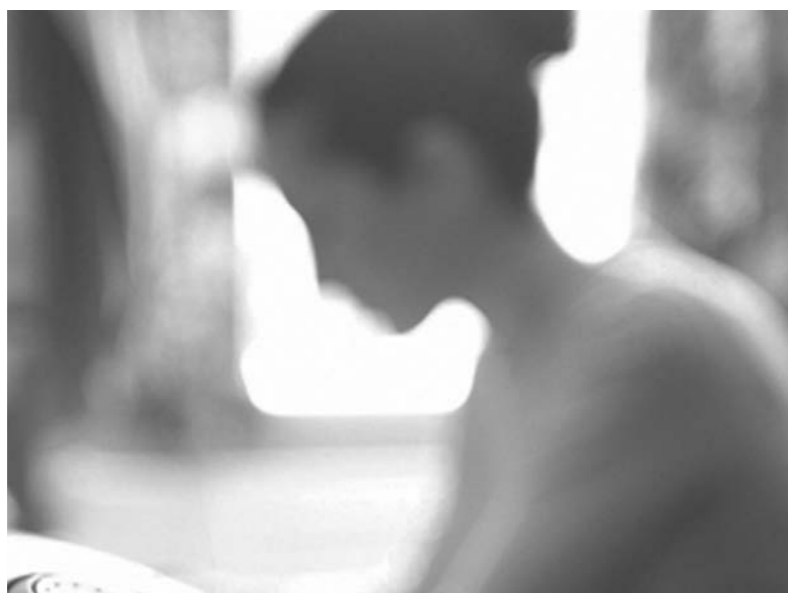
Abstract: This paper reports on the work of a current project 'Assessment of Significant Learning Outcomes' (ASLO), funded as part of the Teaching and Learning Programme (TLRP) thematic series, that is exploring the ways in which the relationships between assessment and curriculum are conceptualised. Its starting point has been the familiar aspiration of educators to maximise the alignment of assessment to curriculum. This is central to the concept of validity, as much a concern for the classroom practitioner as for those designing systems of curriculum and assessment at national level.

In the work of the Assessment Reform Group, on which this project draws, it has become increasingly evident that the relationship of assessment to intended learning outcomes has often been inadequately conceptualised. Some of those outcomes may be specified while others are implicit in course aims. Whatever the stated aims and outcomes, the curriculum as experienced by the student will be shaped by the pedagogic knowledge of teachers responsible for interpreting it. The problems inherent in specifying a curriculum and in designing valid assessments have been compounded, even within one country (UK), by the use of different terminology in different sectors.

The ASLO project has been investigating, through a series of seminars, examples of work undertaken on maximising the extent of congruence of assessment practices with the full range of learning outcomes as specified in the contexts under investigation. The five case study contexts investigated in this way have been:

- National Curriculum Mathematics in England
- The 'Learning to Learn Indicators Project' in Europe (EU)
- Workplace learning in the UK
- Higher education in the UK
- Vocational education in England

Through the course of the seminar series the project team has been developing a conceptual framework with a view to developing a more constructive critique of the extent of congruence in existing curriculum and assessment systems. It is also hoped that the framework will support the design in future of systems in which the alignment of assessment to curriculum is closer than is often found in current systems. It is this draft conceptual framework that the project team are putting forward with the intention of engaging in a wider debate.



Thursday
6th September
12.45 – 2.15pm

SYMPOSIUM PRESENTATION

Student and Tutor Identities in the 'New' and 'Old' University: a critical sociological analysis of Widening Participation and the impact on students' and tutors' pedagogic experiences.

Chair: *Gill Crozier University of Sunderland*

Discussant: *Carole Leathwood, London Metropolitan University*

Abstract: The symposium comprises three papers and a discussant focusing on the theme of identities and widening participation in 'New' and 'Old' Universities (HE/FE-HE). The papers are drawn from three distinctive research projects funded by the Economic and Social Research Council which form part of the Teaching and Learning Research Programme, Widening Participation strand.

This symposium employs social class, 'race' and feminist theories to understand the processes of identities' formations, changes and adaptations the key actors in the studies engage with or have to engage with in order to progress, achieve and even 'stand-out' within unfamiliar contexts. Although social class is not the only explanatory factor it is a central organising principle within the processes of Widening Participation for both tutors as well as students. This symposium provides a significant opportunity to explore these issues in an original way across different types of institutions, and different geographical locations, and comparing and contrasting the experiences of both tutors and students.

The analysis is cognizant of the intersection of social class with 'race'/ethnicity and gender. It draws on the work of Bourdieu in an exploration of the importance of field as well as habitus and cultural and social capitals; together with feminist and race theorists including bell hooks, Patricia Hill Collins and Zeus Leonardo in a consideration of the salience of the gendered and ethnicised dimension of widening participation and whiteness in relation to class.

Central to the symposium theme is the issue of fitting in, belonging and also positionality whereby as Ann-Marie Bathmaker says individuals and institutions work at defining their place within higher education and within society. With respect to Hockings et al this is also arguably the case for tutors in higher education particularly in the light of an expanding and increasingly diverse university sector that has given rise to changing expectations on HE tutors. In this paper the authors explore the tensions that arise for tutors in their identity negotiations with their desire to achieve their pedagogic aims.

Related to this is the issue of performativity, a theme that runs alongside the discourse of 'fitting-in' and belonging. As well as fitting-in, students, in order to be successful must perform highly and thus 'stand-out'. As Reay et al indicate working class and minority ethnic students for whom HE is unfamiliar in terms of their family histories and habituses, tensions arise in their continual struggle to adapt to and balance the expectations of the different milieu they occupy.

As already indicated the papers upon which the symposium is based are drawn from three ESRC funded projects that form part of the Widening Participation Teaching and Learning Research Programme. These research projects involve substantial numbers of participants including students and HE/FE tutors across different geographical regions in England and different types of HE institution, that is, 'old', 'high status', post 1992 and dual sector institutions. The projects employ mixed methodologies, although these papers are based on interim findings from the qualitative data: semi-structured interviews, focus groups, case studies and open observations, together with the analysis of documentary sources. Adapted grounded theory is the main data analysis approach in relation to the employment of the theoretical frameworks indicated above and indicated in the individual abstracts.

The symposium provides a unique opportunity for us to explore and examine processes of identities formations and processes of becoming, in such diverse situations and with a significant number of diverse people.

Widening Participation continues to be a crucial issue for education in general and Higher

Education in particular, at the beginning of the 21st century, both at a national and international level. As different routes are developed in order to achieve government targets for Higher Education expansion, the research that this symposium comprises, contributes to the developing understanding of the impact of these processes for learners and tutors. In particular the significance and uniqueness of these studies lies in comparisons of types of institution, status of institution, and geographical dimensions taking into account the salience of space and place and the geography of Higher Education, together with contrasts between the students' and tutors' experiences in their pedagogical engagement. The research therefore contributes to an understanding of the issues which are also global concerns.

The research contributes to a theoretical understanding of student and tutor experiences in HE/FE and the interrelation of learner and socio-cultural identities and the impact on their subjectivities. We draw on and take further Bourdieu's concepts of field, habitus and the various capitals in the development of nuanced understandings of the challenge presented by changing and unfamiliar situations and contexts for our participants .

In addition this research will contribute to policy and practice in the future planning of HE/FE-HE by providing insights into the negotiations of identity and the challenges and changes students and tutors are making. One issue that is emerging for example, is the move towards e learning and distance learning which we discern is in tension with the need to acculturate/bind –in students who have limited Higher Education cultural capital.

Through our respective dissemination strategies we are involving policy makers practitioners and students (eg representatives from Aim Higher, NUS, NIACE, HEA) in discussion of and engagement with our findings.

Paper 1

“Fitting in” or “standing out”: working class students in higher education.

Authors: Diane Reay, University of Cambridge Gill Crozier, University of Sunderland, John Clayton, University of Sunderland, Lori Colliander, University of Cambridge

Abstract: Drawing on case studies of 24 working class students across four HE institutions whom we have interviewed in depth a minimum of three times each, this paper attempts to develop a multi-layered understanding of student identities that draws together social and academic aspects. Working with a concept of student identity that combines the more specific notion of learner identity with more general understandings of how students are positioned, not only in relation to their discipline, but also both their peer group and the wider university, the paper examines the influence of widely differing academic places and spaces on student identities. It also explores the salience of the social, and more specifically, the impact of social class background on the sort of student, working class students can become in very different HE institutions. In addition we consider the intersection of 'race'/ethnicity and gender with social class, taking into account 'whiteness' as an identity issue (cf hooks 1989, Hill Collins 2000, Leonardo 2002)

In order to engage with the complex tensions between 'fitting in' and 'standing out', transformation and continuity, the pedagogic and the social, the paper will utilise Bourdieu's concepts of habitus and field. Bourdieu argues that when an individual encounters an unfamiliar field habitus is transformed (Bourdieu 1990) . He also writes of how the movement of habitus across new, unfamiliar fields results in 'a habitus divided against itself' (Bourdieu 1999). In the main our data suggests more nuanced understandings in which, for the working class (gendered and 'raced') students in our sample, the challenge of the unfamiliar results in a range of creative adaptations and multi-faceted responses. For some this involves combining a sense of belonging in both middle class higher education and working class homes. Others, particularly in the FE College and the new university, only partially absorb a sense of themselves as students, and the influence of their working class background continues to overshadow and take precedence over the new field of HE. For a majority the accommodations they have to make are generally positive and for some very

explicitly life enhancing. However, for a minority there remain unresolved tensions and discomforts, and it is here we see the more negative impact of habitus divided against itself.

Paper 2

‘I am neither entertaining nor charismatic in the classroom, and it wouldn't fit with my persona identity to ask that of myself’ - How university lecturers negotiate their identities as teacher in higher education.

Authors: Chris Hockings, University of Wolverhampton, Sandra Cooke, University of Birmingham Marion Bowl, University of Birmingham

Abstract: In this paper, we focus on the ways in which university lecturers construct their identities as *teachers* in higher education, about which little has been written. With reference to the literature on school teacher identity construction (Day *et al.*, 2006, Watson, 2006, Soreide, 2006) and on communities of practice (Wenger, 1998) we focus specifically on the factors that shape lecturers' identities within the context of mass higher education and widening participation.

The study reported here forms part of a wider on-going research project funded by the ESRC/TLRP (reference number RES-139-25-0222) Learning and Teaching for Social Diversity and Difference') to be completed in 2008 in which we explore university student and teacher identities and their influence on academic engagement of a diverse body of students. We explore these issues from three different theoretical perspectives using an overarching multi-theoretical framework that seeks to integrate sociological theories of differentials in habitus (Bourdieu, 1977) with pedagogical 'approaches to learning' theory (Prosser and Trigwell, 1999) and theories of knowledge and knowing (Belenky *et al.* 1997). We adopt this framework for the exploration and analysis of lecturer identity which is the focus of this paper.

Through analysis of in depth interviews and on-going dialogue over the course of an academic year, we compare and contrast the ways in which eight, relatively new, lecturers, four from a pre-1992 and four from a post-1992 university, negotiate their identities within their institutional settings and within their different academic subject disciplines. We consider how their social, cultural and educational backgrounds and recent professional development activities have influenced their conceptions of being a teaching in their respective institutions and within their subjects. For example, we explore the part that 'love' of a subject or discipline plays in engaging students in the classroom (Elton, 2000). Through observation of their teaching and analysis of their 'post observation reflections' we explore how aspects of their identities influence their practice, their relationships with and academic engagement of their students and consider the concept of 'authenticity' and 'authentic teaching' as a strategy in encouraging academic engagement (Cranton and Carusetta, 2004).

We conclude by considering the tensions and conflicts expressed by these lecturers in their struggle to negotiate their own sense of identity within their institutions and within an increasingly diverse higher education system.

Paper 3

Imagined futures: the construction of identities in the 'new' higher education.

Author: Ann-Marie Bathmaker, University of Sheffield

Abstract: This paper considers identity formation in the context of higher education in England, drawing on insights from a research study into higher education in 'dual sector' institutions. Although further and higher education in England are divided into two sectors, it is possible for one institution to offer both further and higher education. In such contexts the identity/ies and meanings of higher education are under negotiation.

The paper reports on empirical research from a two year study which has used both quantitative and qualitative methods to investigate the changing shape and experience of HE in England. The qualitative strand of the study has involved in-depth studies of four institutions and has followed 80 students moving between further and higher education. The fieldwork has included interviews with students, tutors and institutional managers, documentary analysis, and the collection of fieldwork observation records, and it is this strand of the study that forms the basis for this paper.

This part of the study takes a socio-cultural approach to understanding the nature of identity formation, and is concerned with issues of structure and agency in the formation of institutional and individual 'learning' identities. It builds on recent research which has explored teaching and learning cultures in English further education (Hodkinson, Biesta and James, 2004), and on work which has investigated higher education identities, such as the work of Reay (2004) and Reay, David and Ball (2001). Bourdieu's concepts of habitus, field and capital (see Bourdieu 1997, 1998) which are used by these authors, are also used to inform this study.

The paper discusses how institutions, students and lecturers negotiate the construction of higher education identities. This might be defined as a process of becoming, with a variety of 'imagined futures' at play. Whilst there are opportunities for agency in these new contexts, the paper argues that the construction of identities is also a process of 'positioning', whereby institutions and individuals work at defining their place within higher education and with the wider society. Since such positioning both highlights and helps to create a differentiated and stratified system, this raises issues for social justice and equity. The paper concludes by considering the unsettling and complex nature of the emerging higher education system in England, and the implications for how identities may be formed and reformed within a stratified system of provision.



Thursday
6th September
12.45 – 2.15pm

SYMPOSIUM PRESENTATION
Learning to teach in post-devolution UK
Chair: Ian Menter, University of Glasgow

Discussant: Pamela Munn, University of Edinburgh

Abstract: During 2006/07 a team of researchers from across the four jurisdictions within the UK has been carrying out a scoping study on initial teacher education and early professional development in these four contexts. The study has been funded by the ESRC's Teaching and Learning Research Programme as a 'thematic initiative'. Seminars have been held in Glasgow, Jordanstown, London and Cardiff, with more than twenty papers from invited presenters.

The underlying premise of the study is that formal definitions of teaching in any nation may be derived from policy documents that set out what it is to qualify as a teacher. These formal definitions are likely to be indicative of dominant conceptions of the nature of teaching and learning within any society. It is anticipated that such differences as exist between these conceptions in the four parts of the UK are likely to relate to historical and cultural patterns and traditions as well as to recent and contemporary research. What makes this avenue of enquiry all the more significant in 2007 is the experience of devolution from 1998 onwards, which has led to new political settlements in relation to education policymaking across the UK.

This symposium will draw on this scoping study and demonstrate the richness and insights that may be drawn from cross-country studies of education policy in the UK, so-called 'home internationals'. Rather than presenting separate findings from each of the four countries, the three papers to be presented will focus respectively on:

- Comparative education research methodology
- Post-devolution policymaking processes
- Differing processes in becoming a teacher across the UK

Earlier studies carried out by some members of the present team had taken a bilateral approach to some aspects of these questions, taking England and Scotland only and comparing approaches to mid-career teacher development (Menter, Mahony and Hextall 2004) and to initial teacher education (Menter, Brisard and Smith, 2006).

The present study that this symposium draws upon looks at all four parts of the UK and focuses on the processes from initial entry into training through to the early stages of professional development.

The project team consists of:
Glasgow: Ian Menter and Moira Hulme
Roehampton: Pat Mahony
Cardiff: Martin Jephcote
Ulster: Anne Moran

The discussant, Prof Pamela Munn, Director of the Moray House School of Education at the University of Edinburgh from 2002-2007 and is making the promotion of home international studies one of her priorities as incoming BERA President.

This symposium is based on current work by a team of very experienced researchers who have worked collaboratively across all four parts of the UK and through the particular structure of the symposium will demonstrate how a research collaboration of this kind can provide insights relating to research methodology, educational policy contexts and to matters of substantive interest to policy and practice communities.

The focus on teacher education arises from the considerable experience in practice and research that the team members have accumulated and is especially timely because of the growing interest in comparative studies in education, not only because of the research community's interest in globalisation (Green, Lingard, Rizvi), but more especially in the UK

context because of growing realisation, since the late 1990s of the powerful insights that can be achieved through 'home international studies'. These two interests have been combined by Jones (2001) in his development of the notion of 'travelling policy' within the UK. One of the key proponents of home international studies, David Raffe, spoke at the projects first seminar and provided a powerful (and new) model which has influenced the development of the work.

Initial teacher education and early professional development provide a 'case' for study that is especially interesting, because, as Zeichner, Ginsburg and other have argued, it is within approaches to teacher education that social values, and conflicts around these values may most powerfully be detected. A study such as this seeks to identify the influence of historical, cultural (some would say ideological) and economic patterns at local, national and international levels as they are played out in policy development in the field of teacher preparation.

The project has had close engagement throughout with a wide range of stakeholders, with representatives of the four general teaching councils of the UK playing a major role in the seminars and with many other bodies sending representatives to take part in the discussions. It is envisaged therefore that both the 'cataloguing' of policy across the four jurisdictions, as well as the analysis that will be presented in the papers in this symposium will inform and influence a number of key policy actors and, through them, practitioners.

The key theoretical significance the symposium will seek is in providing new models for understanding education policy processes in the UK, as well as in developing comparative methodology (following Crossley & Watson and Alexander).

Paper 1

Comparative education in the 21st Century: the case of home internationals

Authors: Martin Jephcote, University of Cardiff, Ian Menter, University of Glasgow

Abstract: The basis for this paper arises out of an initial mapping of current practices for the recruitment and initial and early training of teachers across the UK. This is derived from an analysis of policy and other documentary sources and seminar papers and resulting discussions at linked seminars in Scotland, Northern Ireland, Wales and England.

The relevance of this paper derives from the potential lessons to be learnt from an analysis of increasingly divergent practices in initial and early teacher education and their implications for future policy. Whereas one can make comparisons from across the globe the point is made here that one can look closer to home in what have been termed 'home-international' comparisons. Such comparisons have become especially relevant in the context of post-devolution UK where powers for determining teacher supply and training rest at a 'regional' level. Necessarily, at this early stage of devolution, emphasis is more on structure than outcomes. However, such an analysis seeks to erode the tendency to take-for-granted important 'regional' determinants of supply and training arrangements, such as social, cultural, political and economic conditions.

The paper will clarify similarities and differences in the arrangements for the recruitment, initial and early training of teachers. Comparisons will be made to identify the social, cultural, political and economic constraints and possibilities which have given rise to these similarities and differences. In turn, this will provide a basis to generate questions about the efficacy of policies within individual countries and to speculate on future needs, providing a basis to support what Raffe and Byrne (2005) have termed 'policy learning'. As they suggested, this is more than policy borrowing or the identification of best practice, but by detailed comparison of policies in context, can provide a richer understanding of the issues involved in policy making and implementation. Thus, a purpose of home-international comparisons is to improve our understandings of emerging separate systems and begin to identify those questions to be asked to judge the success of one over the other. A focus should, therefore, be on the thinking behind different countries' decisions concerning their teacher training policies and on producing a better understanding of their motives and

expectations (Gilford, 1997). Moreover, emerging systems can also be evaluated in the ways in which they give expression to professional autonomy and for the ways in which they are likely to foster professional practice. In turn, how training is conceptualised and put into practice will have an impact on the social relations of education, that is, in the experience of learning and on what students learn.

Paper 2

Education policy making in post-devolution UK: the case of initial teacher education

Authors: P. Mahony, Roehampton University, M Hulme, University of Glasgow

Abstract: This paper will examine the shifting composition of policy communities in each of the four jurisdictions in the wake of devolution. While groundbreaking work was carried out in Scotland during the 1980s (McPherson and Raab; Humes) which led to insights into policy processes in many other parts of the world, the 1990s saw a proliferation of policy studies, partly in response to the apparent acceleration of policy processes as well as in response to the proliferation of new policies, in the UK and elsewhere (the work of Ball, Ozga and Whitty for example). In England in particular this period was also characterised by a considerable centralisation of power in national government and in national agencies, such as Non Departmental Public Bodies. While some of these features were apparent in Wales, Northern Ireland and Scotland, they were 'refracted' to varying degrees by country specific institutional arrangements.

However since the increased devolution that occurred after the election of New Labour in 1997, each of the three smaller administrations has had the opportunity for greater formal 'local' control. The opportunity to create an increasingly distinctive national education system has been taken up with some enthusiasm in these three countries, leaving England to continue to create policy within its own boundaries only.

The case of initial teacher education is a particularly interesting example of the influence of policy communities and policy processes on policy outcomes and that is the issue that this paper will address. 'Reform' of teacher education has been a major concern both before and after devolution and the paper examines the extent to which the changes associated with devolution have impacted on these matters.

The distinctive heterogeneity of provision in England was developed at least in part in response to concerns about teacher supply and, somewhat paradoxically, was associated with a very centralised approach overseen by a powerful combination of the Teacher Training Agency and Ofsted, with other stakeholders, such as Higher Education Institutions, local authorities and schools playing a minor part. However there have been some significant developments in the post 1997 period, including the creation of a GTC for England and the renaming of the TTA to the Training and Development Agency for Schools, incorporating a much wider range of responsibilities.

In Scotland the McCrone enquiry into teachers' pay and conditions which reported in 2000, led, among many other things, to a two stage review of initial teacher education, the impact of which at this point appears to have been very limited. Innovation and change in this very homogeneous system of seven providers appears to be on a relatively small scale, with some interesting exceptions.

In Wales, concerns about the loss of newly qualified teachers across the border to England led to the creation of the Furlong review of initial teacher training, which in turn is leading to a major institutional reshaping of initial teacher training, that is causing considerable concern amongst the existing ITT providers.

In Northern Ireland, there has also been a major review, at the same time as there is a major reshaping of the administration of education, notably including the creation of a single education authority. It does seem to be possible that there will be a significant reduction in the number of providers here as well.

Building on earlier Anglo-Scottish comparative work, the paper will explore the ways in which the balance of interests in each nation, as well as the inter-country and global influences, create the distinctive contexts which appear to be increasingly different. Emerging from the analysis will be an assessment of the cultural significance of the policy processes of shaping and reshaping initial teacher education in relation to varying degrees of political independence.

Paper 3

One for all and all for one: four conceptions of teaching or one?

Authors: *A. Moran, University of Ulster, M, Hulme, University of Glasgow, Ian Menter, University of Glasgow*

Abstract: The seminars undertaken for this scoping study, together with the classification and analysis of policy documents from all four countries have allowed us to clarify and deepen our understandings about the major trends that underpin changes in initial teacher education (ITE). While each of the 4 jurisdictions which make up the UK, share aspirations to be distinctive, comparisons have illustrated that the similarities, in respect of approaches to teacher education, outweigh the differences.

The term 'context specific' is frequently used to argue for a unique rationale for particular educational policies and practices. If context is important, then emphasis must be placed on how it can be improved and not simply used as a justification for doing things differently.

Devolution provides opportunities for developing policy capacity at a local level. Frequently, however, the immediacy of much current policy implementation results in policy transfer rather than shaping 'alternative futures' and strategies for achieving these. Too often educational policy development is piecemeal and fragmented and tends to focus on snapshots of isolated parts of the system which results in our deepest problems never getting resolved (Senge, 1990).

There is a compelling need to fully capture the contextual and situational importance in which policy is designed, agreed and implemented. Partnerships of professionals and the cultivation of new 'constellations of allies' (Gomes-Casseres, 1997) will be required, if children and young people are to be enabled to operate effectively within the economic, social and cultural structures of an increasingly global world. The range of research studies underway across the world, intended to stimulate thinking about the future preparation of the teaching profession (OECD, 2001, 2005, 2006; AERA, 2006; TDA, 2002) highlight that, as the world becomes increasingly internationalised, with global interactions becoming commonplace, local and national boundaries will cease to have the same validity and force as they do today. While teacher education cannot be culture free, there is a need to identify with the unique characteristics which specify a society taken as a whole, ie the unique features which sum up a mode of social relations. So while context specific issues may be different, the majority have profound implications for the rest of the world and demand similar approaches to their resolution.

It is against this backdrop that specific arrangements for initial and early teacher education in the four parts of the UK are examined in this paper.

The Learning Journey: young people's experiences of further education

Authors: *Jane Salisbury, Martin Jephcote, Gareth Rees (Cardiff University), John Roberts (University of Wales, Newport)*

Abstract: We have argued that what is learnt and how learning takes place is, in part, a product of the social interactions of learners and teachers. Learning is shaped, facilitated and constrained by, on the one hand, what learners and teachers bring to this interaction and on the other, the nature of the interaction. Thus, prior knowledge and prior experiences of learning (and teaching) together with wider life-experiences 'collide' in the classroom and other sites of learning in ways which, at the time, are unique and individual, but also characteristic of learning in further education settings. Our research strongly points

to the ways in which young learners and teachers resolve the challenges caused by this collision and, in turn, to a wider definition of learning outcomes.

In relation to the above, this paper draws on a variety of data collected as part of an ESRC/TLRP 'Learning and Working in Further Education in Wales' project. In this project we have tracked the learning journeys of students and teachers over a two-year period utilising in-depth individual student and teacher interviews, focus group student interviews, regular structured learning journals and extensive in-depth ethnographic fieldwork. The metaphor of a learning journey is employed as the basis of an early conceptual framework but, as we go on to discuss, it is problematic and restrictive.

Ongoing analysis of our data confirms that the learning journeys that students embark on have their own antecedents rooted in disparate experiences of schooling and, that at relatively young ages, learners lead and manage complex private lives. This points to the almost self-evident fact that 'learning journeys' do not start or end at common points and, crucially, the nature of the 'journeys' are not only different but also impact on the 'destination'.

Coming to college is seen by most young learners as an important part of their lives but, is only a part of their lives, so that managing lives includes managing learning and often as life becomes complex and demanding, it is 'learning' that often pays the price. Students adopt a range of coping strategies, many looking to contain their studies within the timeframe of the college day so that at other times they can attend to other matters in their lives. In turn, teachers are acutely aware of, on the one-hand, the need to strive for improving students' results, on the other, the need to cater for the wider realities of their learners' lives.

Our conclusion does not offer a neat set of solutions. On the contrary, in recognition of the complex and individual nature of 'learning journeys' and the 'collision' of experiences that underpin learning calls for something of a complex response. Not least, although we have found the metaphor of a 'learning journey' helpful it is also problematic in the ways in which it might suggest a planned, linear and continuous route.

Thursday
6th September
2.30 – 4.00pm

SYMPOSIUM PRESENTATION

Neuroscience and Education 1: Imaging and Experimentation

Chair: *Paul Howard-Jones, University of Bristol*

Abstract: Cognitive and behavioural neuroscience is providing a number of insights that are of interest to education, and may contribute to improving its theory and practice. However, these investigations alone are often not sufficient in providing the specific information required by educators to achieve these goals. The successful interrelation of neuroscientific and educational concepts will increasingly require the carrying out of new investigations and bridging studies, using imaging and experimental techniques but with educational aims and objectives, with the production of new knowledge about the brain as a useful and important by-product. This symposium provides an exposition of recent results from quantitative and experimental studies aimed at prompting new educational insights into issues at the interface of neuroscience and education. Contributions range from a study suggesting the prevalence of visual stress in classrooms, two functional Magnetic Resonance Imaging (fMRI) studies providing insights into creative thinking and education, and an experimental study supporting the role of uncertainty in pupil engagement in classroom learning, as suggested by a previous fMRI study reported in last-years' Neuroscience and Education symposium. Taken together, these studies reveal how interdisciplinary research in this area is now providing experimental data that can be used to develop theory and pedagogy (see the second symposium linked to this one: Neuroscience and Education 2: Theory and Pedagogy).

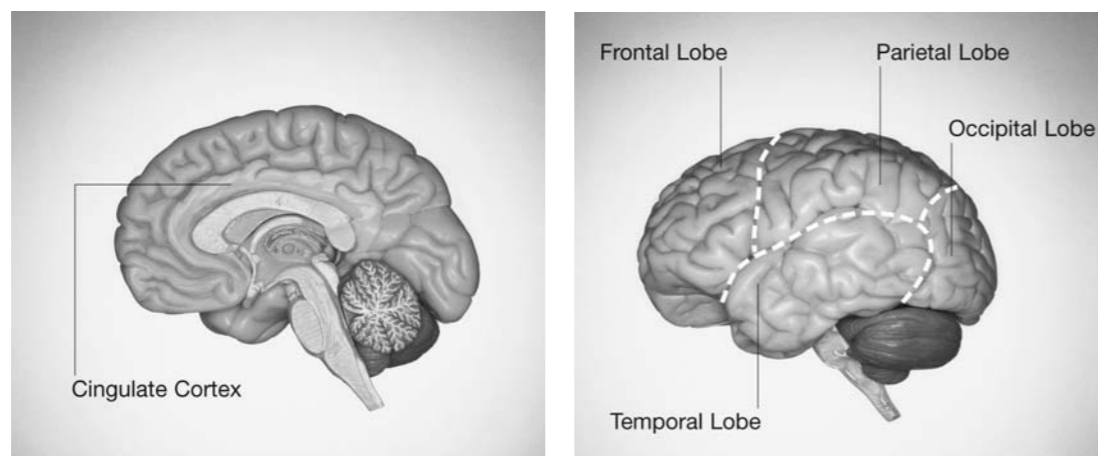
Thursday
6th September
2.00 – 4.00pm

Paper 1**Preference for increased uncertainty in a computer-based task: testing an educational hypothesis derived from neuroscience****Author: Skevi Demetriou, University of Bristol**

Abstract: Attitudes towards school and school-type tasks change as children move through primary and secondary school. It is unclear why, for many children, motivation towards academic achievement often decreases, contrasting with increased commitment to other areas, such as social relationships and the use of computers for socialising and gaming. One possible explanation arises from the human response to uncertainty. Both within social domains and gaming practices, there are greater levels of uncertainty than found in many learning tasks and this uncertainty may contribute in a positive way to children's motivation to engage and develop their knowledge in these areas. School learning, on the other hand, more consistently results in predictable levels of reward, with increased knowledge providing a predictable increase in marks. Educators usually consider consistency of reward as a straightforward encouragement for learners, but the grounds for considering more carefully the involvement of uncertainty and doubt in learning situations have early origins, with Dewey noting that "the origin of thinking is some perplexity, confusion, or doubt". However, educational research has rarely focused itself specifically on the motivational role of uncertainty.

Animal studies indicates that the primate brain produces maximum dopamine in the meso-limbic system when rewards are 50% uncertain, and human psychological studies confirm similar preferences. Neuroscience has developed techniques that allow further insights into reward processes. New techniques such as fMRI (functional Magnetic Resonance Imaging) allow activity in brain areas associated with reward to be observed during learning tasks. In a recent pilot fMRI study at Bristol University involving a problem-solving task, we showed increased activity in attentional circuits when increasing uncertainty, even though this had no conceivable bearing on the process and progress of problem solving.

This research attempted to demonstrate the practical application of these results, by showing that simply increasing uncertainty in a learning task, beyond that provided by the incomplete knowledge of the learner, can increase motivation and engagement. The investigation used a specially-designed educational computer game that allowed the researcher to examine whether, when and how students chose to introduce uncertainty in the specific learning context. The researcher recorded the changes in students' preference, together with their experiential assertions and their expressive responses during their interaction with the computer-based task. The research was conducted in school settings with fifty 11-12 year old student participants performing the computer-based gaming task individually. The teacher of the class involved was also interviewed in the research procedure, allowing his opinion from his own perspective to contribute to the overall analysis. Statistical analysis of the collected quantitative data, derived from students' interaction with the task, demonstrated a statistically significant difference between



students' preference in the certain and the uncertain choice, favouring increased uncertainty beyond that associated with the learner's incomplete state of knowledge. There was a statistically significant difference between students' choice in certain and uncertain options in the computer game with preference towards uncertain ones ($\chi^2=77.976$; $df=1$; $p<0.0001$). Generally, students demonstrated a progressively increasing preference for the uncertain path despite their increasing awareness that the probability to earn points from either pathway was the same. This increasing trend in their preference proved to be dissociated with the questions' level of difficulty.

Qualitative analysis of students' reflections associated their preference for uncertainty with the emotional-affective component of reward, i.e. they provided pleasure-related explanations, in spite some frustration observed in the absence of reward. Thus, their preference for uncertainty appeared associated with both "wanting" and "liking" it, so that it was associated with both motivational incentives and reward-related pleasure. However, an emergent thematic analysis of interviews with participants also highlighted the involvement of individual differences (including gender) and contextual issues.

Paper 2**Neural correlates of creative intelligence as determined by abilities at fluid analogising****Author: John Geake, Oxford Brookes University**

Abstract: Fluid analogising has been conceptualised as a basic cognitive process underpinning those creative aspects of intelligence which are mediated through working memory. In education, making analogies underpins effective pedagogy whereby the effective employment of fluid analogies enables efficient categorisation and assimilation of new knowledge.

A previous fMRI study of fluid analogy letter strings demonstrated the feasibility of employing a multiple plausibility design in fMRI (Geake & Hansen, *NeuroImage*, 2005). Specifically, a parametric analysis of analogical depth (ADR) produced an identifiable network of fronto-parietal activations, similar to previous findings from neuroimaging studies of analogical reasoning. Two frontal ROIs associated with working memory load (BA9, 46) were further identified as regions in which BOLD increase correlated positively with IQ (NART).

This current study investigated to what extent were the activations associated with fluid analogising are generalisable across different types of analogy stimuli.

N = 16 adult participants of IQ range from normal to high, screened for language processing normality, right-handedness etc. Stimuli were fluid analogies composed of letter, number and polygon strings with transformation, e.g., 123 -> 124, 567 -> 568, pseudo-randomly interleaved for presentation. A unique-symbol counting task using the same stimuli was employed as a control. An out of scanner battery of tests measured individual cognitive abilities. Siemens/Varian 3T system fitted with a birdcage head coil. Structural scans: in-plane resolution of 1 x 1mm and thickness of 1.5 mm. Functional data: T2* weighted echo-planar imaging (EPI) volumes of 24 contiguous axial slices, in-plane resolution of 3 x 4 mm and a thickness of 5 mm, covering the entire brain (TR = 3 s, 64 x 64 matrix, FOV = 192 x 256 mm, TE = 30 ms, Flip Angle = 85°). Neural activations included bilateral IPFC areas associated with working memory, consistent with previous findings. There was considerable overlap in the frontal activations associated with the letter, number and polygon analogy strings, and, interestingly, with the symbol counting task activations. A covariate analysis of RAPM (a surrogate measure of IQ based on analogical reasoning) with the analogy activations revealed frontal RDLPFC regions in which BOLD increases correlated with IQ. Together with the previous results, notably Left DLPFC correlates with the NART, these findings support the claim for fluid analogising as a fundamental process of general cognition, including creative thinking.

To enhance creative thinking in schools, interdisciplinary curricula should be featured, and supported by pedagogies which explicitly promote fluid analogising.

Paper 3**Lighting and Discomfort in the Classroom**

Authors: Mark Winterbottom, University of Cambridge and Arnold Wilkins, University of Essex

Abstract: We have examined glare from classroom lighting, whiteboards and blinds. We made measurements in 11 schools. We find that classrooms are generally over-lit. The lighting usually flickers in such a way as to impair visual function and cause headaches. The reflected glare from whiteboards is sufficient to impair vision and induce discomfort.

Data were collected during July and August 2006 from randomly selected classrooms in 11 secondary schools (11-16, 13-18, 11-18), themselves randomly selected from six local education authorities in the East of England.

Electric lamps which are operated on an AC supply (50 Hz in Europe) have an inherent modulation in light output at twice the supply frequency (hence 100Hz in Europe), whereas lamps driven by electronic circuitry flicker at much higher frequencies in the kHz range. The 100Hz flicker is resolved by the human retina, affects the control of eye movements, impairs visual performance and increases headaches. Partly for these reasons the more efficient high frequency circuitry is recommended for school classrooms. In our survey we found only 8% of secondary classrooms were solely lit using the relatively healthy and efficient form of fluorescent lighting. There were significant differences between schools and local authorities in this respect.

When lit with all available daylight and artificial lighting, mean illuminance at pupils' desks was 1168 ± 55 lux, with significant differences between schools and local authorities. Mean illuminance was lower in daylight only (807 ± 6060 lux) and fluorescent lighting only (684 ± 51 lux), but still generally above recommendations for standard classrooms (300-800 lux). Extent of day lighting from windows was a determining factor in such excessive lighting levels, but teachers' ability to control such lighting, should they have wished to do so, was compromised by classroom infrastructure. Blinds were often broken, but even when functioning normally, were often of an inappropriate design. For example, horizontal Venetian blinds produce bright stripes. The stripes have a spatial frequency within the range appropriate for the induction of visual stress from the pattern.

All white boards were mounted vertically on a wall and illuminated by light from a data projector mounted on the ceiling. Mirror-like reflections from the sheen on the surface of the screen resulted in a bright spot within which light from the projector was reflected directly into the eyes. Luminance from data projection screens was assessed using a spot photometer, from within and outside the bright spot. When lit with daylight and fluorescent lighting, mean luminance from the white background of data projection surfaces within the bright spot was 18825 ± 55 cd.m², and outside the spot was 2633 ± 144 cd.m². The latter was well above the level of 70 cd.m² recommended for reading from paper. The brightness within the spot differed significantly between brands of whiteboard, with mean luminance from some dry-wipe boards being as much as 324033cd.m².

In summary there are many sources of visual stress within the classroom. The excess lighting levels could be reduced, saving on costs. More efficient lighting could also save on costs and improve health. Mounting projector screens at an angle to the wall would reduce discomfort and visual impairment.

Paper 4**Individual differences in the inhibition of creativity: a case study**

Authors: Shu-Hua Yeh and Paul Howard-Jones, University of Bristol

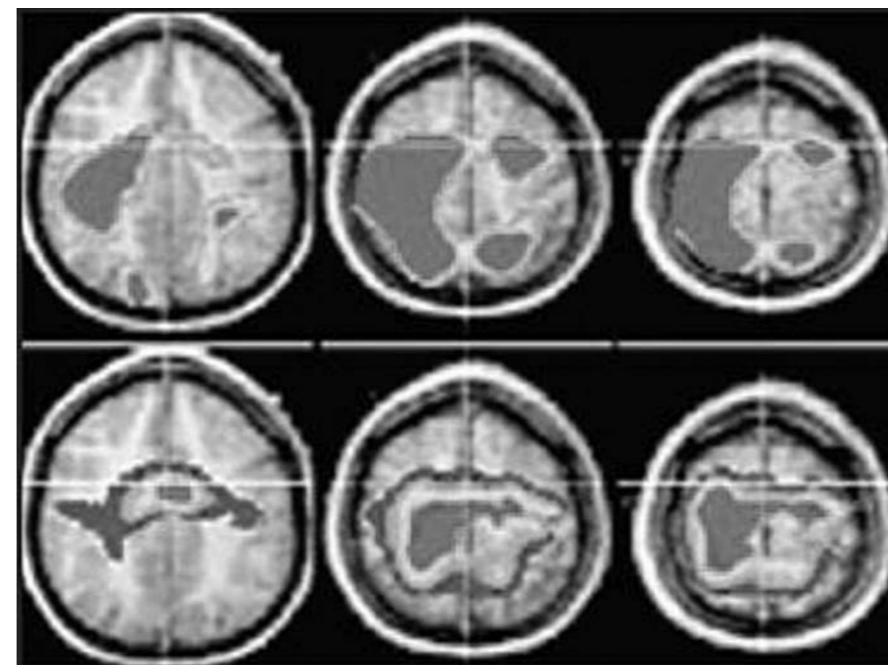
Abstract: Models of creative cognition suggest creativity results from effortful, constructive problem solving, and creative processes do not spontaneously occur. An alternative model proposes creative solutions automatically after preceding effortful attention. Either way, the suggestion is that individuals can, at least in terms of inhibition, vary their creativity at will.

Indeed, recent experimental work has based itself on this assumption that individuals can vary their own creativity in this way. For example, in a recent fMRI investigation of a creativity fostering strategy, one of the authors attempted to produce the correlates of creativity in a story generation task, by generating contrast images comparing data when individuals were asked to produce a creative story with those when they were asked to produce an uncreative story. Behavioural indicated that individuals were able to vary their creativity in this way.

However, this may not always be the case, even amongst those who may be especially gifted. This paper considers the case of 'N', a gifted pianist and writer, and the subject of a recent Horizon Documentary 'Creative Disorders' (February 2007, BBC2). N is also a sufferer of Tourette's syndrome (TS). TS is a inherited neurological disorder characterized by tics waxing and waning -- involuntary, rapid, sudden movements or vocalizations that occur repeatedly in the same way. The exact cause of Tourette's is unknown and research is ongoing, but it is indicated that dopamine and serotonin, the neurotransmitters with an abnormal metabolism, are involved with this disorder.

In this research, N's creativity was studied in a behavioural experiment and an fMRI investigation. His data was compared with a 'normal' sample of trainee drama students. In the experimental task, participants were required to generate a story that included 3 words. Each of 56 sets of 3 words appeared on a computer screen for 1.5 s before participants were asked, by a prompt appearing on the screen, to create to create a story that was either as 'creative as possible' or as 'uncreative as possible'. In the behavioural experiment, participants were asked to then report their story. The subsequent fMRI investigation followed a similar procedure, but participants were asked to report the stories retrospectively after leaving the scanner.

Results showed that N's creative ability was well above the average displayed by other participants in our sample. More surprisingly, however, he seemed less able to vary his creativity, with his creativity score when producing uncreative stories being higher than the average score of our previous sample when they were attempting to be creative. fMRI analysis showed activity in similar brain areas as other participants, but with no significant differences when N was trying to vary his creativity. Results are discussed in terms of evidence for individual differences, across the spectrum of creative achievement, in the ability to vary creativity at will.



Thursday
6th September
2.30 – 4.00pm

SYMPOSIUM PRESENTATION

Educational Research and Policy: Epistemological Considerations (I)

Chair: Professor David Bridges, Von Hügel Institute, Cambridge and University of East Anglia

Discussants: Professor Lesley Saunders, University of London, Institute of Education and General Teaching Council

Abstract: This symposium will examine the extent to which educational policy *can* legitimately be derived from educational research and, by extension, the extent to which it *should* be so derived.

This examination arises in a context in the USA and the UK in which there has been disappointment by policy makers and researchers alike at the apparent lack of impact of educational research on educational policy. This disappointment has fed the growth of powerful movements in both countries which have promoted a very narrow conception of the kind of educational research which should be supported and of the methods and methodologies which can provide policy makers with answers to their questions about 'what works'.

The symposium is drawn from an on-going programme of work funded under the ESRC Teaching and Learning Research Programme in which a group of philosophers of education were invited to consider the contribution which the philosophical literature might make to an understanding of the relationship between different kinds of research and policy. It seeks to give fresh consideration – based on philosophical work in the theory of knowledge – to the extent to which and the logical pathways by which different forms of enquiry can legitimately inform educational policy (or not, as the case may be).

There will be two linked symposia. This first symposium will begin by outlining the concerns which led the way to the 'what works' phenomenon and examine critically the nature of the claims made under some of the different approaches to addressing the 'what works?' challenge (Alis Oancea and Richard Pring). It will then go on to examine the rhetorical and logical character of different kind of policy statements as a way of understanding both the scope for research to inform policy and what we shall argue to be the inevitable limitations. This discussion will raise questions about the inescapably normative character of 'policy' and the role of different research and scholarly traditions (including philosophy) in dealing with this normative ingredient (David Bridges and Michael Watts). We shall then have two inputs illustrating the issues related to two contrasting forms of research: large population studies (Paul Smeyers and Bruno Vanobbergen) and case studies (John Elliott and Dominik Lukes). To what extent could these kinds of educational research inform education at a policy level?

International Engagement

As part of the effort to maximize the impact of TLRP's research findings, we are attempting to broaden the Programme's international outreach. We particularly invite colleagues from the Middle East, Africa, Asia and South America to engage in a web-based knowledge exchange with TLRP.

In addition, to support the evolving international collaboration between national education research associations, launched by AERA in Chicago, TLRP is trialing use of a Virtual Research Environment (VRE) to enable colleagues to share ideas and resources. A VRE is also being provided to support international thematic exchange on 'Critical Pedagogy'.

For further details about these initiatives, please contact Jehan Saleh, International Liaison Researcher, j.saleh@ioe.ac.uk

Are you a
researcher
visiting
from
overseas?

Paper 1

The importance of being thorough: On systematic accumulations of 'what works' in education research

Authors: Alis Oancea and Richard Pring, University of Oxford, Department of Education

Abstract: Our paper will review documents emerging from (and connected with) the What Works Clearinghouse (Institute of Education), U.S., and the EPPI-Centre, UK. The two initiatives have in common strong policy support, an ideal of cumulative knowledge inspired by the medical model, and explicit references to the evidence-base movement epitomised by the Cochrane and Campbell collaborations. However, whilst the US initiative emphasises the value of "scientific" education research, as measured against certain methodological standards and hierarchies of evidence, the UK initiative favours research synthesis, quality assurance and evidence weighting (in a process originally called "systematic reviewing").

The paper will do three things. First, it will place the "what works" and "systematic reviewing" discourses in the wider contexts of the evidence-base movement (cross-disciplinary); of the recent criticisms of educational research on grounds of relevance and impact; and of the UK research policy emphasis on economic competitiveness, relevance and accountability in the 1990s.

Second, we plan to unpick these discourses and explore the understanding of knowledge that they privilege, in terms of its nature, sources, scope, growth, and value. The set of assumptions and hierarchies so revealed made the models a particularly powerful response to recent policy-originated criticisms of education research (e.g., in terms of its alleged lack of relevance; fragmented, non-cumulative character; and lack of methodological rigour)².

However, while these models may be suitable for some education research, there is a chorus of voices in the profession expressing concerns about their generalisation as the "golden" standard for policy-relevant and policy-recognized research³. The final part of our paper will therefore explore challenges to the models discussed, such as: the limitations of the analogy with medical and natural science research; the questionable hierarchies of evidence and of sources, which underpin it; the restrictive model of knowledge with which it operates (which does not fully take into account, for example, knowledge about the world as "taken" by the person, rather than "given"; introspective, intuitive, and artistic practice and knowledge; practical wisdom and the limits of technical knowledge); the instrumentalisation of quality and of the assessment of evidence and of research; and the exclusion of modes of research that embrace non-cumulative, divergent, non-rational, or non-teleological view of knowledge.

We conclude that, while the systematic accumulation of validated evidence about "what works" may be an effective response to recent criticisms of education research, likely to gain policy endorsement, and also an effective way of discarding certain instances of bad research, at the same time it may be based on narrow assumptions about knowledge that run against what we see as some core principles of education research: critical attitude, diversity, and educational value.

¹ See Thomas and Pring, 2004.

² See Blunkett, 2000, and also: Hillage, J. et al (1998) Excellence in research on schools. DfEE Research Report 74; Tooley, J. and Darby, D. (1998) Educational research: as critique, London, OFSTED.

³ See Schoenfeld, 2006.

Paper 2**The logic and rhetoric of educational policy**

Authors: *David Bridges, Von Hügel Institute and University of East Anglia and Michael Watts, Von Hügel Institute*

Abstract: Our concern in this paper is with understanding the logic of the determination of policy and its relation with the epistemological standing of research. 'The difficulties with a direct transmission view of research impact' wrote Levin 'range from utilitarian concerns to philosophical objections' (Levin 2004: 4). It is on these philosophical considerations, then, that we shall be focussing.

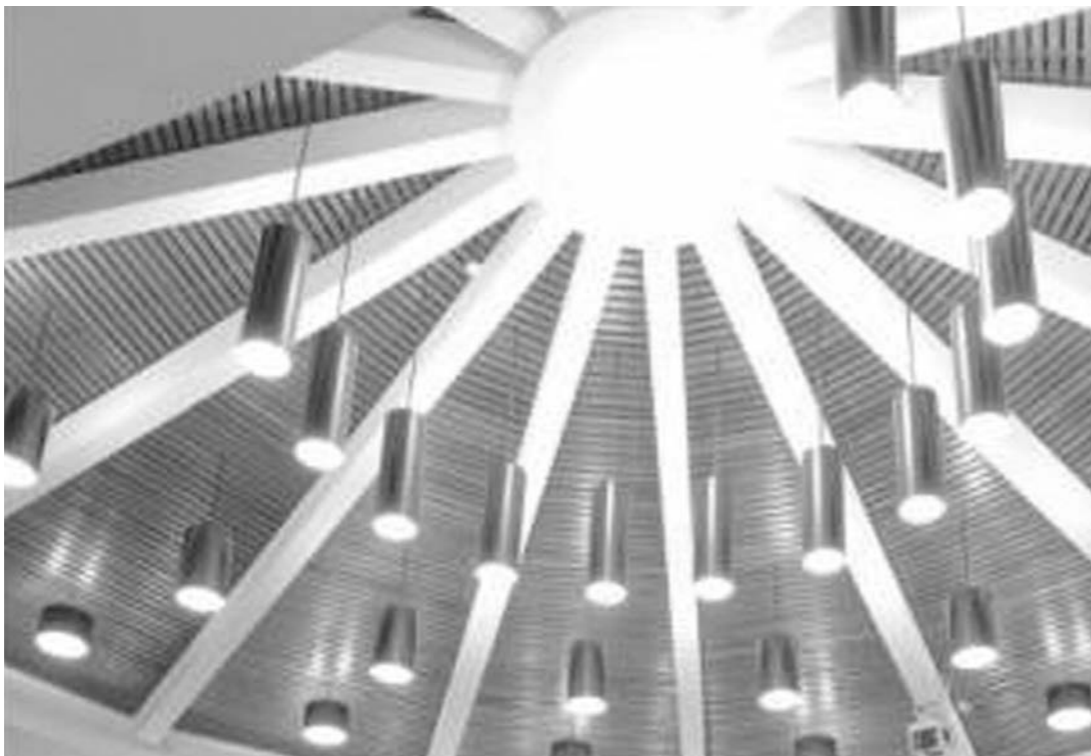
There will be three main parts to the paper

First, we shall examine as it were the logical, rhetorical and functional standing of policy statements. For example we might distinguish between the function of policy statements in:

- providing aims, aspirations, procedural principles which others have to interpret
- providing hypotheses (eg as to what will be the consequences of doing this or that in the classroom) which others have to test in their local contexts
- providing rules which others have to follow
- describing behaviours that others have to perform
- providing outcomes which others have to be achieved through whatever means they think appropriate

Clearly, these different functional logics of policy make different demands on their evidential base. For example, agreement on a policy to improve the literacy scores of 11 year olds by 10% may require little more than a level of political determination linked perhaps to evidence that this was not a totally unrealistic aspiration. Agreement to require that this should be achieved through the universal adoption of a particular practice would require a very different level and kind of evidence.

Secondly we shall look at the components of policy decisions themselves – not least because we think that part of the disappointment of educational researchers with respect to the take-up of their research in policy fora is the result of researchers' under-



estimation of the things which (quite legitimately) count in such decisions; and part of the disappointment of the commissioners of research with the information they get from researchers is that they underestimate the range of considerations which researchers will need to research (and which need to be part of the commissioning process) if the research is to provide a solid basis for policy. We shall also consider whether it might be possible to distinguish between considerations which should appropriately be taken into account in determining policy and others, eg to do with a narrowly defined form of political self interest, which ought to be subordinated to these first considerations.

Thirdly, we shall want to argue that normative considerations are inseparable from policy decisions: policy statements (exhortations?) are emphatically about either the sorts of actions which are generally desirable or the sorts of actions which are likely to serve the sorts of actions which are generally desirable. The normative framing of educational policy may be discovered in the intentions of whoever promotes the policy; it may lie in an evaluation of the observable consequences of the policy; it may be discovered in the various readings of the policy which different stakeholders can provide. In other words, the 'normative framework' is open to interpretation, construction and reconstruction. A key question for us, however, will be to what extent and in what ways are these normative elements of policy also amenable to research, including in this their critical, analytic and evaluative scrutiny with the tools provided by philosophy and social theory.

Paper 3**Large scale population studies**

Authors: *Paul Smeyers and Bruno Vanobbergen, K.U.Leuven, Belgium*

Abstract: The need to apprehend the world one lives in is a fundamental part of the human condition. We want to understand how society at large functions, what other people do, and who one is. "Understanding" here refers to knowing how things are, so that they can be taken into account in what one does later on. But in many circumstances, the concept of "causality" seems to pervade our thinking about ourselves and others, our environment, even the entire universe we live in. Causal explanations are fundamental to the intellectual understanding of physical systems, living organisms, and in our practical deliberations in these contexts. They are involved in the use of technology (where we attempt to achieve particular effects while avoiding undesirable ones) and in our everyday practical planning and dealings. Not only physicists and engineers, but social scientists have since the Enlightenment been occupied with finding causes in order to be able to manipulate particular outcomes. Psychologists and educational researchers are no exception to this general tendency. Here, for many, to explain an event is to identify its antecedents, i.e. its causes.

There is of course a strand of criticism against the use of "cause" in the sphere of human explanations. This is not to deny that human beings are exempted from causal interactions generally; no one seriously denies that, for instance, bodily functions are subjected to physical and biochemical laws and processes. Nevertheless, once it is suggested that our behaviour itself can be made clear either partly or exhaustively by these kind of processes, human scientists and philosophers generally protest. Philosophers of human action in the continental and analytical traditions such as Dilthey, Gadamer, Ricoeur, in addition to Wittgenstein, Winch and Taylor, have argued to the contrary that human beings give meaning to their lives. It behoves us to ask then, whether causal explanations still have significance or not, and in what sense, and for which contexts? And is it correct that if one accepts causal explanations of human behaviour there looms the threat of the disappearance of ethical issues, thus inviting us to live "beyond freedom and dignity"? Though these issues typically have been discussed within epistemological contexts, there is a dearth of them in the Anglo-Saxon philosophy of education literature. Nevertheless these matters are highly relevant for the area of education and for educational inquiries. Here we will not rely primarily on the criticisms of the philosophers of action we have mentioned, who are critical of causal explanation. We will take a different line. For government and policy-makers educational research fails both to provide the answers they are looking for. Worse, much research fails to enhance professional practice. Crucially, for the position developed here, it is also criticized for being fragmented into myriad of incommensurable

case studies which merely revel in their own uniqueness. On the one hand policy-makers are looking for a science of education, on the other hand it is argued that such an aspiration is based on false beliefs about what research can deliver. We will therefore attempt seriously to take the claim that we can look for causes in order to understand the reality we live (in), and we will focus primarily on “the natural world”. We will argue that even if we would fully endorse the program of looking for antecedents, a dominant driver for many educational researchers, this would still not solve the problems they set out commonly to address.

Paper 4

Under what terms and conditions might case studies yield useful knowledge for policy makers?

Authors: John Elliott and Dominik Lukes, Centre for Applied Research in Education, University of East Anglia.

Abstract: Some policy makers and indeed educational researchers will respond to our question in entirely negative terms to the effect that there are no terms and conditions under which case studies could conceivably yield useful knowledge for policy makers. Policy they might argue is a course of action that applies across many cases. It is something that can be consistently applied with little room for variation. Its object is a given population across which it seeks generalisable effects. Hence useful research for policy makers will always be a study of samples rather than cases, and will yield findings that can be validly generalised to the population that is sampled. Policy makers may have confidence in such findings because they have been generated by the application of rigorous ‘scientific’ procedures for sampling, data gathering, analysis and interpretation.

One of the problems with this line of argument is that it takes the politics out of educational policy making. Policies not only have instrumental significance in terms of their intended effects. They also have symbolic significance for the creation of political alliances. Policymaking is so often a matter of seeking compromises between disparate interest groups rather than a deduction from general principles. At best the generalisations produced by this kind of educational research serve a rhetorical function. Having decided what educational policies will prevail policy makers will search for general research findings that support them. The study of samples may yield general principles to provide post-hoc justifications of policy, but one should not confuse such studies with those that are capable of informing political judgment.

We will argue that policies – education being no exception – are matters of situated judgment, and that the quality of such judgments may be improved by the study and discussion of cases. Judgment always takes context into account, whereas the study of samples always involves abstracting variables from context. From the standpoint of the latter context is viewed as an obstacle to generalization. Sample studies avoid describing how variables interact in particular contexts. Case Studies on the other hand seek a greater particularization of descriptions based on contextual analysis. Indeed we will argue that collections of such descriptions can provide a basis for not only discerning practically significant differences between cases but also practically relevant features that cases possess in common across a range and variety of contexts. Policy judgments may therefore be informed by universal insights distilled through the constant comparison of cases. Such insights we will argue consist not so much of general principles derived from the study of samples, but of universal principles evidenced in the study of cases. Whereas, the former cannot provide a basis for replacing political deliberation and judgment as a basis for policy making, the latter can inform and educate such judgment.

In the course of the paper we will not only draw on philosophical work to support the argument outlined, but also examine a) the methodological justifications for different types of case study research in policy contexts e.g. ethnographic, historical, and evaluatory case studies, and b) the data gathered recently about the impact of Case Study-based Programme Evaluation on policy-making in the context of the ESRC project entitled ‘Representing Context in a Research Archive of Educational Evaluation Studies’.

Thursday
6th September
2.30 – 4.00pm

SYMPOSIUM PRESENTATION

Opening doors to mathematically-demanding programmes in Further & Higher Education 1

Chair: Laura Black, University of Manchester

Discussant: Yvette Solomon, Lancaster University

Abstract: This symposium is one of a linked pair which draws together findings from an ESRC-TLRP Widening Participation project: *Keeping open the door to mathematically-demanding F&HE programmes*. This research compares two approaches to teaching AS mathematics in the FE (16-19 years) sector in England: an inquiry based applied programme known as ‘Use of Mathematics’ and traditional AS mathematics. Use of Maths involves mathematical modelling, use of technology and coursework and therefore, offers a potential contrast with ‘traditional’ classroom pedagogic cultures. However, we are aware that classroom culture is influenced by a complex of factors and differences between the pedagogic practices afforded by these programmes are not wholly distinct. The project addresses the following questions:

- How can different cultures of mathematics learning and teaching offer different learning outcomes and mathematical identities for socio-culturally differently positioned students (class/gender/community)?
- How effective is Use of Mathematics in comparison to matched traditional mathematics programmes in promoting learning outcomes for 16-19 year old students?

The project involves a large quasi-experimental study which provides outcome measures for students’ perceived self-efficacy in use of mathematics, disposition in HE and disposition to study mathematically demanding courses in HE. This runs alongside multiple case-studies which are designed to (i) capture the classroom contexts which serve to mediate individual students’ participation and their perceptions of participation in mathematics, and (ii) track the various trajectories of participation of the individual students. This approach provides us with an alternating foregrounding of (i) the classroom activity and (ii) the individual students’ narratives of identity. This fits with our sociocultural/ Cultural Historical Activity Theory perspective in which we assume a didactical relationship between identity and social practice.

This first symposium will address the first of our research questions by exploring the mathematical identities produced by students who might be considered ‘at risk’ of exclusion from participating in post 16 mathematics education (e.g. low GCSE grade). Laura Black will analyse students’ biographical interviews about their background history, experiences with mathematics and future life plans as narratives of identity which the students produce/reproduce within the interview situation. Next, Paul Hernandez-Martinez will investigate how social class influences students’ mathematical identity and the role of pedagogic practices in this relationship. Thirdly, Pauline Davis will discuss how ‘cultural models’ emerging through localised classroom pedagogic practices mediate different kinds of mathematical identities. Finally, all three papers will be discussed by Yvette Solomon (Lancaster University) who will act as discussant for the symposium.

Paper 1

Imagined futures: mediation of the mathematical biography

Authors: Laura Black, P. Davis, P. Hernandez-Martinez, M. Pampaka, G. Wake, University of Manchester

Abstract: This paper presents data drawn from biographical interviews with students (ages 17-18) conducted as part of the ESRC TLRP research project on widening participation in mathematics education. The students are undertaking AS maths and AS Use of Maths (in England) and were asked about their educational background, their experiences of learning maths and their disposition towards future study.

We view the stories students tell us in these interviews as narratives of identity – narratives in which students draw on troubles, obstacles and resources as they map the trajectory of

their imagined lifestory (Bruner 1996). Thus, we are interested in the ways in which students identify with mathematics and how this connects with the trajectories they construct within the interviews. The paper asks: how can/do students connect their identity as a learner of mathematics with their other salient identities within the interview narrative?

The paper focuses on two students (Gemma and Lee) drawn from our wider sample of 50. These have been selected because of the contrasting positions towards learning maths they narrate. However, both cases exemplify the kind of positionings which were evident in students' narratives across the dataset. All interviews were analysed as biographical narratives focusing on how students' self identity statements fitted with the overall story they were attempting to construct. We are particularly interested in self-identity statements regarding students' career plans (e.g. 'I want to be an engineer'), their decision to enter HE and their relationship with mathematics.

The two stories told by these students illustrate different positionings with regards to mathematics, and highlight how one might narrate oneself as some kind of 'maths person' or not. For instance, Lee, finds himself marginalised from mathematics due to his insitutional position as a 'struggling' student and consequently draws on the notion that 'maths is irrelevant' to his career trajectory in order to reconcile a sense of 'not belonging'. The notion of a 'leading thread' or 'activity' in the student's narrative appears to be particularly pertinent to some students – these are the activities which are most important in terms of the individual's development (Leontev 1981). For example, Gemma, a 'low grade' student, who in another college would have been prevented from taking AS maths, constructs her narrative with the view that 'mathematics is hard and challenging' which provides positive energy for her leading activity of pursuing a STEM (Science, Technology, Engineering and Maths) career as a marine biologist.

We conclude that whilst some students may not narrate any particular leading activity in their accounts, for others such activities permeate the narrative throughout. Sensitivity to the use or non-use of leading activities in our analysis enables us to see the degree to which student's identity as a learner of maths plays a part in the students imagined life story.



Paper 2

Comparison of first generation to HE students with those from families with a history of HE education: The impact of social class on learners' mathematical identity

Authors: Paul Hernandez-Martinez, Laura Black, P. Davis, M. Pampaka, G. Wake, J. Williams, University of Manchester

Abstract: This paper reports on research from the ESRC TLRP project which aims to understand how cultures of learning and teaching can help widen participation in mathematically demanding courses in Further and Higher Education (F&HE). The literature shows that students who come from lower social class backgrounds are especially vulnerable to marginalisation by the education system (e.g. Ball et al, 2002) and in relation to mathematics particularly (Cooper & Dunne, 2000). Traditional mathematics courses constitute a barrier for some students. As a response, AS Use of Maths was designed to facilitate pedagogic practices which include and engage students normally considered 'at risk' of being excluded. This is in line with a vast body of research which has identified pedagogic practices as a site for inclusion/exclusion, with particular focus on the ways in which pedagogical codes(classification, framing, regulation) constrain or afford negotiability, discussion, dialogue and inquiry (after Bernstein, 1990; Morais, 2002; Boaler,1997)

In this paper we analyse discourses of students' mathematical identity by social class, in order to address the following questions: How are students' mathematical identity and intentions towards entering HE (especially mathematically demanding subjects) influenced by social class? How do different pedagogical practices shape this relation?

We focus our attention on how learners make use of different cultural models when building their identities as mathematics users/learners. The notion of 'cultural model' was developed by Holland & Quinn (1987) to describe the culturally derived rules and schema used by students to tell stories of themselves and their everyday activity (see also Gee 1999). We hypothesize that some cultural models are boundary objects between teaching and learning practices and the identity of learners.

Data comes from 50 'biographical' interviews with students taking AS maths and AS Use of Maths courses in 5 colleges around England. These students were selected to include a good proportion of students from first generation to HE families and a spread of GCSE maths grades. The data were analysed using ATLAS Ti for evidence of cultural models in students' discourses that relate to social class and identity: (i) in relation to practice (i.e. educational practices, cultures, pedagogies) and (ii) in relation to the identity-work of constructing the self as a maths user/learner. We also analysed observational data, including artefacts students use in their mathematical work, for themes which linked to the cultural models that students use as discursive tools for self-authoring during the interview event.

The paper focuses on the comparison of those students from first generation to HE families with those whose families have a history of education in HE. In particular, we explore the diverse ways different mathematics programmes (AS versus Use of Maths) mediate the identities of students from various social backgrounds. The findings of this paper are expected to inform policy on widening participation in mathematics education.

Paper 3

Students' mathematical identity and its relation to classroom mathematics pedagogic practice.

Authors: Davis, P., Williams, J. Black, L., Hernandez-Martinez, P., Pampaka, M., Nicholson, N. and Wake, G, University of Manchester

Abstract: The paper is based on the ESRC TLRP research project in widening-participation in HE, 'keeping open the door to mathematically-demanding F&HE programmes', which aims to understand how cultures of learning and teaching can support learners in ways that help widen and extend participation in mathematically demanding courses in F&HE.

In this paper we address the following questions:

- (i) How do various students talk about their experiences of different pedagogies/T&L cultures and themselves in relation to mathematics?
- (ii) How can different pedagogic mathematics cultures mediate mathematical identity, especially for those at risk of marginalisation from mathematics?

In particular, we provide comparison of data from Use of Mathematics AS (with its emphasis on modeling, use of technology and coursework) and AS Mathematics students/classrooms. The paper draws on case studies of nine AS and Use of Maths classrooms in five 6fFE courses, selected for diversity e.g. in socioeconomic background and mathematics GCSE entry grade requirements. It draws on analysis of repeated interviews with more than fifty students, teacher interviews and of videos of the numerous lessons we observed.

We draw on socio-cultural theory, particularly Cultural-Historical Activity Theory, to provide a view of identity as in dialectical relation to practice. This relation we refer to as identity/practice. With regard to capturing students' mathematical identity/practice, we draw on both interview and observational data, including artefacts of students mathematical work. We analyse these for their self-identity and their identity-in-practice (Holland et.al.) in relation to the cultural models (Gee, 1999), especially cultural models (i.e. beliefs which inform action) about learning maths, which they use as discursive tools for self-authoring during the interview event or when in situ during maths classes. However, as anticipated we found that Use of Mathematics and Mathematics AS courses are not implemented in distinctly simple 'didactic' versus 'inquiry-based, sociable' ways, and that the classroom culture is influenced by a complex of factors. For instance, in one college, we see a macro-discourse of academic performativity mediating mathematics classroom pedagogic practice and mathematics learner identity. We see this discourse at work in the talk of many students (as well as in the talk of the teachers) and examine how this discourse mediates their mathematical identities. Comparison of AS Mathematics and Use of Maths classrooms, however, shows the influence of curriculum design captured in local practice and some differences in how students negotiate their cultural models about mathematics. We present a discourse analysis of students' identity/practice that is contextualised within the cases concerned, and draw comparisons across studies.

In another case study classroom, we see a sociable mathematics at work and we examine the possibility that 'sociability' in mathematics pedagogy might afford the acquisition of maths as a practice (hence influencing their mathematical identities) by students who otherwise may be on the margins, which might be encouraged by engagement in common joint mathematical activities. Here we see connections with others, especially with the work of Boaler, Greeno, Solomon, Morais and many others.

The case studies provide evidence, in artefacts of students' work and in the ways they describe learning mathematics to suggest that Use of Maths AS can mediate a qualitatively different classroom mathematics pedagogies and ways of identifying with learning mathematics.

SYMPOSIUM PRESENTATION

Neuroscience and Education 2: Pedagogical Theory and Practice

Chair: Paul Howard-Jones, University of Bristol

Abstract: The translation of brain-based insights into new educational approaches is not straightforward and can be problematic. However, new insights from cognitive neuroscience, and from studies linking this knowledge to education, are now providing fresh impetus for developing and revising our ideas about pedagogy, with a new emphasis on the need for both educational relevance and scientific validity. This symposium reports on recent attempts by a range of researchers to link neuroscientific findings with the theory and practice of teaching and learning. Successful attempts to build bridges between these two areas will depend upon an open recognition and understanding of the fundamental their differences in terms of perspective. The first contribution in this symposium examines

these differences directly, within the specific context of mathematics education. Following this, the second author identifies some of the emerging resonances between concepts from neuroscience and popular constructivist perspectives in education. Finally, three researched instances of drawing upon ideas from neuroscience and applying them in educational practice are critically reviewed. The first involves the Raviv Method, aimed at using daily physical exercises to improve attention and concentration, the second involves a course aimed at promoting resilience and well-being in managers, and the third involves supporting trainee drama teachers in their understanding of how to foster creativity amongst their pupils. Each of these three contexts required the translation of concepts from neuroscience into pedagogical practice, and the authors use a variety of qualitative methods to examine the processes involved and their consequent outcomes.

Paper 1

Spanning Mathematics Education Research and Cognitive Neuroscience: Conceptual, Epistemological, & Methodological Divergences

Authors: Michael E. Martinez, University of California at Irvine and M. Layne Kalbfleisch, George Mason University

Abstract: In the community of scholars, cross-disciplinary research efforts are generally regarded as having high potential for new insights, even breakthroughs. Through cross-disciplinary work, the ordinary conceptual isolation of disciplines is bridged to provide a conceptually richer, and potentially more complete, knowledge product. It is almost axiomatic among scholars that interdisciplinary work is important, and that there should be more of it. While that may be a widely-held belief, the institutionalization and practices of cross-disciplinary (collaborative work between fields) or trans-disciplinary work (fields joining to create new paradigms) are difficult in part because traditional academic success is often rooted in expertise defined by the academic disciplines (Koizumi, 2001).

A further complication of interdisciplinary collaboration is that all forms of scholarship are significantly social and cultural practices. Like every participant in a cultural activity, researchers adhere to norms and beliefs about what counts as knowledge in their discipline; they hold assumptions about who speaks with authority and who does not. These norms can differ between disciplines. As we consider the challenge of bridging two scholarly fields—research in mathematics education and cognitive neuroscience—we are reminded of the differing textures of social fabric within which scholarship operates.

The connections between scholarship and cultural practices are clarified by distinguishing between domains and fields (Csikszentmihalyi & Robinson, 1986). A domain is the body of knowledge around which scholars organize—for chemists, it is chemistry; for historians, history. The field is broader, including not only shared knowledge, but also the values, priorities, authority structures, and norms of social interaction that scholars who study a domain accept as normal. These broader aspects of scholarship are typically taken for granted by practitioners; they are tacit knowledge, unwritten rules of conduct and implicit behavior assimilated by a person on the path from novice to expert (Polyani, 1976). Distinguishing between fields and domains helps clarify that the development of a scholar includes not only mastery of a knowledge domain, but also enculturation into a field. The domain/field distinction also helps clarify why cross or trans-disciplinary study can be unexpectedly complicated. In this essay, we consider ways in which hoped-for collaboration between researchers from two fields is more difficult by deep-rooted differences in how researchers think about knowledge-building within their disciplines. Their domains of study are:

- Mathematics Education Research: Learning Through Social Negotiation and Support
- Cognitive Neuroscience: Mapping Brain Structure and Function

This discussion addresses cross-field differences in the nature of their respective research enterprises on three axes: (1) units of analysis (2) conceptual products, and (3) epistemological beliefs. We focus on how differences in these areas of study, as fields, increase the difficulty of building cross- or trans-disciplinary understanding and collaboration and extend to possible constructs which might bridge the gap such as number sense, place value, proportional reasoning, executive function, and automaticity.

Thursday
6th September
4.30 – 6.00pm

Paper 2**The Neurobiology of Constructivism****Author: M. Layne Kalbfleisch, George Mason University**

Abstract: Advocates for school reform have clamored tirelessly in recent past to change how we teach our children to learn in school and have experienced limited success. If reform efforts are to take hold, they must be driven by principles that define how we grow and learn. With burgeoning evidence from various branches of the neurosciences, we are now in the best position we have ever been to understand the nature of the learning process and the ways in which our biology is crafted to construct meaning. It is worth acknowledging that many view the relationship between brain research and educational practice with a healthy skepticism (Blakemore and Frith, 2005; Schwartz-Bloom, 2005; Kalbfleisch, 2005; Ansari, 2006). In past and present, brain research has been overgeneralized and misinterpreted, leaving scientists wary of practical interpretations by enthusiastic and well-meaning practitioners. In his book, *The Myth of the First Three Years: A New Understanding of Early Brain Development and Lifelong Learning*, cognitive psychologist, John Bruer (1999) bore down on the policy and education worlds for misapplying research findings. Bruer extended his argument to say that neuroscience has been unable to tell us anything we don't already know from the efforts of cognitive psychology or common sense.

This paper contends that there is now emerging evidence that has changed how we view the operations of the brain and that the knowledge of those changes has the potential to influence how we will educate children in the 21st century. It is only when the two fields intermingle that we will truly begin to reap the benefits of applying what biology tells us about our natural learning abilities. The brain is coming to be understood as a system that is "motivated to make sense of the world alongside others similarly engaged" (neuroscientist, Stephen Quartz, personal communication), one that is an open and ever-adjusting complex-adaptive system capable of self-organization, assuring a check and balance that keeps overall structure intact (Singer, 1995). The dynamical systems theory (Thelen, 1988) pairs cognitive with biological development as an open, dynamical system where development occurs as a response to novelty in the environment. Similar to the concepts of assimilation and accommodation proposed by Piaget, a biological system has "an indefinite capability to evolve new functions and new hierarchical levels of control while maintaining a relatively fixed set of elementary parts at each level" (Pattee, pp.106-107).

A complex system like the brain has a memory mechanism for tuning itself according to sensory and cognitive feedback. Because experience requires us to notice, respond, move, react, and learn new things, it ensures that the many brain systems that comprise the



expression of intelligence (emotion, memory, attention, perception, language, sensory, and motor integration) are working fluidly together to enable the construction of meaning. Constructivism can be defined from a number of different perspectives: Vygotsky's social constructivism (1928, 1978) emphasizes the role of culture and social interaction in meaningful learning, Bruner's cognitive constructivism (1960, 1979) emphasizes the role of cognitive processes in meaningful learning, and Piaget's genetic epistemology, the idea that we construct meaning throughout life in ways that are appropriate to a biological and cognitive developmental period. The central nervous system is an *endogenous heuristic* for understanding meaning making. Studies from infancy, molecular neuroscience, models of memory, and cognitive neuroscience make the case for a neurobiology of constructivist learning.

Paper 3**The Raviv Method and its contribution to overcoming learning difficulties.****Author: Penny Frost, St Mary's College**

Abstract: The paper will describe the findings of a small research project to be run in the summer term 2007 at a primary school in North Hampshire, during which time the Raviv Method will be introduced to a group of students who have a history of significant difficulty in gaining literacy and numeracy skills.

The writer has a background in special needs education and is currently SENCO at a mixed comprehensive secondary school in the London Borough of Richmond. Her interest in neuroscience results from a desire to understand more about the apparent impairment of the neural circuits of the brain in students who are dyslexic or who experience difficulty in attention and focus. This has led her to take seriously the claims made for the Raviv Programme, that regular daily practice of the exercises in the programme can create the specific neural structure required for learning, and provide focused strategies for controlling the brain activity necessary for attention and concentration. The writer is currently training in the Raviv Method, to become a licensed practitioner.

The Raviv Method makes substantial claims for learning in three particular areas:

- Pre-school learning, where the purpose of the programme is to develop the neural infrastructure that is required for efficient learning, and prevent later learning difficulties from occurring
- Managing AD(H)D, where the programme is based on teaching the individual to control the brain wave activity needed for attention and focus
- Improving academic performance, and teaching individuals to deal with the stress and anxieties that accompany studying and taking exams

Following achieving her licensed practitioner status, she will set up a small-scale research project at a primary school in Hampshire. This will enable her to introduce the Raviv Method to a group of students and their families, and to deliver the programme on at least a weekly basis over one term in a supportive environment. The students invited to receive this input will be selected because they have significant difficulty in gaining literacy and numeracy skills, and families who are prepared to meet the time demands of the programme. The students will be tested at the start and finish of the programme, to identify gains made, such as increases in reading accuracy, ability to concentrate, and other improvements (for instance, increased confidence in tackling classwork) which may be identified by teachers or parents. Alongside this group, there will be an opportunity to collect comparative data on a group of peers who may not have particular educational needs, receiving the same school education without the additional input of the Raviv programme. A comparison will be made of the individual gains achieved by each student in a range of educational and social areas over a three month period.

The writer expects that the students who are receiving training in the Raviv Method will make greater gains than their counterparts in the control group. The paper to be presented to the SIG will examine the gains made in the context of the normal expectations of the teachers and parents at the school, and what has been achieved overall by introducing the Raviv Method into the school.

Paper 4**Sounds of Intent: Mapping musical behaviour and development in children and young people with complex needs****Author: Graham Welch, Institute of Education, London**

Abstract: The *Sounds of Intent* project has been designed to refine and evaluate an original model of behaviour and development in, and through, music for children and young people with complex needs, initially focused on those with profound and multiple learning difficulties (PMLD). In general, children and young people with PMLD have profound global developmental delay, such that cognitive, sensory, physical, emotional and social development are believed to approximate to the first twelve months of 'normal' development. Such children and young people with complex needs are a part of the 1% (90,300) of all pupils in schools in England in full-time special education (House of Commons, 2006: 5). In total, there are approximately 32,000 pupils with Severe Learning Difficulties (SLD) and 9,000 with PMLD in special schools (DfES/ONS, 2005).

Following an initial survey of the nature and perceived quality of music provision in special schools in England (Welch, Ockelford and Zimmermann, 2001; Ockelford, Welch and Zimmermann, 2002), the research team has focused on the design and evaluation of a new framework for mapping musical behaviour and development that is grounded in observable behaviours. The presentation will report on the outcomes of the first year of new Esmée Fairbairn Foundation-funded research (2005-2006). In total, 630 school-based observations of individual children and young people with complex needs were made of 68 participants, aged 4y7m to 19y1m, within five schools. Significant patterns of musical behaviour are evidenced in the data that relate to (i) behavioural category and (ii) age. No significant differences were observed in relation to participants' sex and school location. In the presentation, the Year 1 outcomes will be discussed in terms of 'normal' expectations for development in music and also evidence of neuropsychobiological integration and modularity.

Paper 5**Co-constructing an understanding of creativity in drama education that draws on neuropsychological concepts****Authors: Paul Howard-Jones, University of Bristol, Mitch Winfield, Gail Crimmins, University of Cardiff**

Abstract: This paper reports on an attempt to develop an educationally relevant and scientifically sound understanding of the fostering of creativity in drama education, using an action research spiral focused on trainee teachers' reflective practice. This piece of research was the last step in a multi-perspective cycle of research activity that also involved trainee teachers from the same course (a BA in Drama Education) in a related fMRI study of a strategy intended to foster creativity, followed by a 2-day workshop involving a professional theatrical team that explored insider insights into the findings of the fMRI study and related neuropsychological concepts.

16 trainee teachers took part in a short programme of seminars and activity-based workshops exploring concepts about creativity, followed by discussions with the research team (consisting of 2 teacher trainers and the neuroeducational researcher who directed the original fMRI study). Workshops, seminars and discussions were videoed and, after each of these events, an analysis of this data was used as a basis for reflection by the research team and subsequent planning for the next event.

The programme was built around the concept of creativity as movement between two mental states: generative and analytical. Trainees were first introduced to this concept, and then tried to identify when which appeared most salient in different activities, and the different environmental and pedagogical factors that appeared involved in supporting them. Managing transitions between these states was seen as a pivotal factor in orientating and maintaining a successful creative trajectory in different contexts. Video analysis, together with transcriptions of research team meetings, was used to track the development of

useful concepts and ideas, and the language used to express them. As the workshops progressed, awareness about creativity, and how to foster it, developed amongst the trainee teachers, as did the sophistication of the terms they used to communicate these ideas. Towards the end of the programme, trainee teachers were able to offer insights into their own practice, building on concepts explored during the programme and introducing new ones.

The research helped the team develop ideas about what to communicate about cognitive and neuroscientific concepts, and how to communicate it in this particular educational context. In particular, the use of neuroscientific case studies proved useful in communicating an understanding about different cognitive states. Although the methods associated with action research emerge from an entirely different perspective than neuroscientific techniques, this research was helpful in suggesting further insight into some of the brain activities observed in the fMRI study, and the brain activities observed in the fMRI study were sometimes helpful in understanding trainees' experiences during the workshop and in developing practice. It is suggested that, provided the limitations of the different epistemologies involved are understood, multiperspective research can support positive cross-fertilization of thought in neuroscientific and educational research.

This research was funded by ESCalate - the Education Subject Centre of the Higher Education Academy Network.

Paper 6**Neurology and positive emotions****Author: Jonathan Barnes, S. Scoffham, Canterbury Christ Church University**

Abstract: Studies in neuroscience and psychology emanating from the United States over the last decade have drawn attention to the enormous importance of the emotional component in learning (Salovey, 1994, Salovey and Sluyter, 1997, Goleman 1996, 2006, Le Doux 1999, 2002, Davidson, et.al, 2000, Csikszentmihalyi, 2002). In particular, the work of Antonio Damasio (Damasio 1995, 1999, 2003) has been seminal in exploring the neurological basis of some of our emotional responses. His most recent work on the physical and cognitive influence of feelings of joy suggests that when we are happy, body and mind are in their optimal condition. In the domain of psychology, Ryff (1989, 1995), Ekman, (2004), Csikszentmihalyi (2002) and others have identified similar attributes in their studies on happiness.



Recently Csikszentmihalyi's concept of 'flow' has been further developed by Seligman (2003) who suggests that deeply engaging and positive experiences enable us to build up our psychological strength and resilience at the same time as our overall level of happiness. Extending the argument, psycho-physiologist Barbara Fredrickson (2004) predicated her 'broaden and build' theory of positive emotions on both psychological and neurological foundations, suggesting that positive states promote improved relationships, improved thinking, a willingness to embrace new ideas and greater resilience to adversity.

This coming together of positive psychology and neurology may have immense significance for schooling and teacher education (Barnes 2005, 2007, Goleman, 2006, Blakemore and Frith, 2006). However, the difficulty of interpreting findings which are often complex and contradictory has led teachers to pursue a range of neuro-myths such as 'Brain Gym' and the 'Mozart Effect' (Howard Jones and Pickering, 2005). This is one of the reasons why we have argued in a recent report to the *All Party Parliamentary Group on Scientific Research in Learning and Education* (Scoffham and Barnes 2007) that teacher education has a pivotal role in turning findings from cognitive neuroscience into meaningful classroom pedagogies.

This paper reports on an innovative project which sought to explore the interface between neuroscience, positive psychology and education. Led by ourselves and entitled '*Finding Freedom within Responsibility*', the course aimed to promote resilience and well-being in managers. Over six sessions a combined group of head teachers and leaders from the creative sector were introduced to findings from neurological and psychological research concerned with the state of well-being. The significance of these ideas to teaching and learning was critically evaluated in presentations, group discussion and structured debate. Practical activities were used to explore different pedagogical approaches. In addition, participants were introduced to a number of well-being scales drawn from established research studies and asked to conduct participant action research within their own institutions on the impact of their new understandings of well-being. This resulted in a number of small scale research reports which employed mixed methods. These were collated and subjected to analysis for thematic content using an iterative process of categorical analysis (Coffey and Atkinson, 1996).

Preliminary findings from this trial programme suggest a number of significant outcomes. In particular the development and encouragement of positive attitudes appears to have a strong impact upon job satisfaction, resilience in the face of adverse situations and the sense of shared meaning amongst staff.

Additionally the research showed a remarkable degree of commonality between leadership and management issues relating to the contrasting domains of education, theatre direction and arts administration. There is a suggestion that one of the strengths of neurological perspectives is that they attempt to understand learning and meaning making at its most fundamental and personal level.

Techno-mathematical literacies in the call centre: Making visible the mathematics of selling a mortgage

Authors: *Richard Noss, C. Hoyles, P. Kent, A. Baker, Institute of Education, London*

Abstract: In this paper, we will describe a slice of our TLRP research project, "Techno-mathematical Literacies in the Workplace". Our focus will be on a case study in a mortgage company in which we undertook close observation of the practice of mortgage selling within one of its call centres, and characterised the nature of the mathematical knowledge required for effective sales. In a second phase of our work, we sought to develop and foster this knowledge in employees, by starting from symbolic artefacts of their practice, and enhancing them technologically to create boundary objects that employees could manipulate and explore, with a view to accessing some of the invisible mathematics behind their creation.

**Thursday
6th September
4.30 – 6.00pm**

SYMPOSIUM PRESENTATION

Educational Research and Policy: Epistemological Considerations (II)
Chair: Professor David Bridges, Von Hügel Institute, Cambridge and University of East Anglia

Discussant: Professor Lesley Saunders, University of London Institute of Education and General Teaching Council

Abstract: In the first part of this two part symposium we examined the considerations and the political forces which have issued in a narrowing of the range of educational research which has been deemed to provide a warranted basis for policy decisions. We provided some analysis of the rhetorical and logical character of educational policy and considered in general terms what role research of any kind might appropriately play in the formation of policy. In judging this 'appropriateness' we draw on philosophical writing about the ethics of belief to suggest not only what kind of evidence does inform policy (well documented territory in empirical policy studies) or what can inform policy (in terms of a defensible epistemology) but what *ought* to inform policy (in terms of the ethics of belief).

In this second symposium we go on to explore in more detail and with reference to specific genres of educational research their potential relationship with policy examined in epistemological terms. There will be three contributions to this discussion. These will address the claims which might be made on behalf of three different forms of educational enquiry to inform educational research and the logic of their relationship to policy (and directly or indirectly to practice): action research, philosophical analysis and 'Romantic thinking'.

In the first paper Lorraine Foreman-Peck and Jane Murray address the epistemological 'warrant' of action research by questioning how it does and how it should inform practice and policy. They seek to complement more abstract discussions of the relationship between research, action, knowledge and decision making. Taking their cue from this, and noting the widespread resistance to abstract theorizing, James Conroy, Robert Davis and Penny Enslin then draw on examples of educational policies to defend the claim that philosophical reasoning should be integral to the critique and development of policy. Finally, in the third paper, Richard Smith offers 'Romantic thinking' as a means of liberation from the shackles of modernist frameworks.



**Thursday
6th September
4.30 – 6.00pm**

Paper 1**What conditions maximise confidence in participant action research for teachers' and policy makers' decision making?***Authors: L. Foreman-Peck and J. Murray, University of Northampton*

Abstract: This paper addresses the following philosophical questions which seek to unearth assumptions about 'warrants' for action: how does or ought action research inform a teacher's teaching or practice? How could or ought a piece of action research carried out in one place inform the teaching or educational actions of another teacher? How can or ought teachers' action research projects influence national policy? How does or could national policy get used in action research? The aim will be to address the question 'what philosophically defensible rationale(s) is (are) given (or suggested) for basing teaching and policy making decisions on a) the procedure (s) of action research and b) action research case study reports.

The approach is to review a selection of action research case studies, which illuminate the questions posed above, and to interrogate them from an epistemological and ethically sceptical perspective. That is, the reading will be informed by the questions 'how do you know?' and 'why is the action right or good?' 'What could another teacher or policy maker learn from the report?

No attempt will be made at a comprehensive survey of action research case studies. The aim is rather to select action research case studies that allow the authors to reflect on the meanings the researchers have made of the idea of 'warranted confidence'.

The area of action research is ideologically saturated. The authors have no bias towards one particular variety. The authors are ideologically neutral. A small number of action research case studies will be selected for discussion on grounds of their propensity to illuminate philosophical issues, and they will be used as illustration. Relevant selection criteria will be their:

- Clarity and comprehensiveness
- methodological variety
- scope: individual, community, wider networks
- involvement of other stakeholders (e.g. children as researchers, parents, policy makers)
- location in UK and non UK contexts.
- evidence of action researchers drawing on previous action research reports and the use made of them.
- Evidence of the use by action researchers of policy
- Evidence of policy makers involvement in action research or use of action research reports

The theoretical discussion of action research, in philosophical circles, has been framed by the Aristotelian concepts of *techné*, *praxis*, and *phronesis* and the practical syllogism (e.g. Carr, 1981). These positions, which rule out the use of 'theory' as a form of instrumentalism, and methods as unnecessary, have been challenged by Kristjannasson (2005) Winch and Gingell (2004) and Bridges (2002). The authors' intention is to make an original contribution to knowledge in this area by using the selected case studies as a stimulus to reflection on possible meanings that the idea of 'warranted confidence' in procedures, reporting and findings (if any) of teachers' or other stakeholders' action researches have as manifested in their reports. In this way it is envisaged that the more abstract discussion of the relationship between research, action, knowledge and decision making, offered by such writers as Elliott (2006) and Carr (2006) can be complemented.

Paper 2**Philosophical argument as a basis for policy***Authors: James Conroy, Robert Davis, Penny Enslin, University of Glasgow*

Abstract: Our central question is: what kind of confidence should we have in philosophical analysis and argument as a basis for policy and what is the nature of the inference between such analysis and argument and recommendations for policy?

Noting the widespread resistance to abstract theorizing, in spite of the enormous potential for philosophy to contribute to policy development, we defend the claim that philosophical reasoning should be an integral part of policy development and critique. In doing so we do not suggest that philosophy can replace the political process but rather we show how it can complement the politics of policy.

The relationship between philosophy and policy has been the subject of contrasting arguments among philosophers of education. These range from the view that successful education policy requires the contribution of philosophy to be viable, to a more circumspect one that philosophy can offer a more modest contribution. Our approach will favour the former, more expansive approach, including:

- Conceptual clarification as a substantive part of policy development
- Development of arguments about values that underpin policies, their ideological context, and the comparative cogency of arguments about competing values
- Understanding the significance and viability of particular claims about 'evidence' and what inferences can be made from them to the formulation of policies

Defending the necessity for a philosophically refracted policy process, we explore a range of examples of education policies to illustrate our claim that a less instrumental and more philosophically informed approach would draw on philosophy as one of the forms of relevant research from which educational policy can be derived.

Paper 3**Romantic thinking for educational research***Author: Richard Smith, University of Durham, UK*

Abstract: This paper contributes to investigation of the 'Epistemological bases of educational research findings' under the auspices of the Teaching and Learning Research Programme (TLRP) of the ESRC (Economic and Social Research Council). According to the TLRP's website (<http://www.tlrp.org/themes/seminar/bridges.html>) the central questions to be addressed are to do with the warrant or level of confidence which educational research (of different kinds) can provide for decisions about what should be done in terms of general educational policy across a whole system or practice at classroom level. It will therefore address specifically the claims made by the contemporary discourses of 'evidence based practice' and 'what works', but it will locate these within a wider framework of literature which examines the relationship between research, policy and practice ...

Elements of the remit demand critique. 'Epistemological' directs us to the theory of knowledge, which suggests a traditional examination in terms of, for instance, justified, true beliefs, or the distinction between knowing how and knowing that. Knowing, understood in these sorts of terms, is only one of many relevant ways of relating to the world and of imagining the connection between us and it. The idea of research having an epistemological basis clearly implies that epistemology is to be foundational, in a sense that many philosophers now identify as a decisive wrong turn in the history of philosophical thought. The phrase 'Research findings' carries a strong implication of empiricism, as if research essentially discovers facts and correlations (it would be odd to present, for instance, a sociological perspective, philosophical analysis or a set of creative insights as any kind of findings). Each of these assumptions— that the world is to be scientifically known by agents separate and distinct from it, that epistemology will supply the basis for sound knowledge, and the assumption of empiricism — are essentially modernist.

It is then perhaps the modernist framework that needs to be challenged. A first move in this direction can be made by responding to the remit's invitation to subject the scientific model ('evidence based practice' and 'what works') to critique, the location of discussion within a wider literature about research (in social science, broadly conceived, as I interpret it) and the emphasis on 'warrant or level of confidence'. This latter, I argue, opens a particularly helpful and revealing perspective on the question of just what shape or shapes educational research might take. For when we ask what confidence we can place in educational research we are drawn to a different set of answers than if we ask what constitutes 'sound'

or 'good quality' educational research. The latter question tends to draw us back into the modernist, scientific way of thinking. The former question however tends to release us from the debilitating assumption that this is the single legitimate form of thinking, or indeed that there is just any one, hegemonic, kind of educational research. It permits us to see that we can have confidence in ways of thinking, interpreting and researching that are quite different from the (supposedly) scientific. It then enables us to explore what I here call Romantic thinking and research, a dimension of thought that enables us to take with full seriousness, and to explore, three possibilities that could prove liberating for thinking about educational research and education itself. These are the possibility of doing justice to the unstable or protean, of grasping that our research may create reality as much as report or represent it, and of moving away from thinking of our relationship to these realities only in terms of 'knowing' them.

Thursday
6th September
4.30 – 6.00pm

Different Strokes for Different Folks: Diverse Students in Diverse Institutions - Experiences of Higher Education.

Authors: Gill Crozier University of Sunderland, Diane Reay University of Cambridge, John Clayton University of Sunderland, Lori Colliander University of Cambridge, Jan Grinstead East Durham and Houghall Community College

Abstract: The paper draws on the interim findings of a 28 month, Economic and Social Research Council (UK) (RES-139-25-0208) funded study which focuses on the socio-cultural and learning experiences of students in Higher Education (in the UK). The research is particularly interested in the experiences of working class students but situates these within a wider context and cross section of students undertaking a range of subjects. The research takes place in four different types of institution, located in three different geographical areas, comprising a high status (Southern), an 'old' (Midlands), and a 'modern' (Northern) university and a college of Further Education (Eastern College) (where the students in our study are studying Foundation degrees).

The focus is on students in years one and two studying a range of subjects. The paper compares and contrasts the university experiences of a diverse group of students' within and across these institutions and subjects and shows how these experiences impact on their identities and them as learners. In addition to the importance of social class we are concerned to explore the extent to which these experiences are mediated by gender, 'race' /ethnicity and also age. We explore the themes of subject sub-cultures and expectations; identification with their university; learner/student self-perceptions and the structural and organisational differences between universities and the implications of this for working class students in particular.

The research takes place at a time when in the UK and globally, there is concern about 'widening participation' and breaking down the exclusivity of university education. In addition there is concern about retaining students and ensuring progress. In the UK, the universities with the most success at widening participation also have the highest drop-out rates (HEFCE 2006). Whilst universities are reporting success in widening participation there exists an apparent polarisation of types of university attracting working class and minority ethnic students (Power et al 2003; Sutton Trust 2000). In this context we discuss what the different institutions offer their students and how the subsequent experiences compare. We also look at the differences within each institution, particularly between subjects as well as across different social groups. We conclude that in terms of the experiences, rather than a stark polarisation, a spectrum of experiences exists. This is structured by the differential wealth of universities, the structure and organisation of the institutions and their ensuing expectations of the students, as well as the students' own socio-cultural locations. Furthermore, we consider the question of the implications of 'Widening Participation' and what value it offers to working class students in different contexts. Bernstein (1996) in focusing on schools identified stratified and differentiated institutions and stratification and differentiation within the same institution, whereby different types of knowledge were conveyed leading to outcomes with differential status and power (Barfels and Delucchi 2003). Moreover, there exists in schools a 'hidden curriculum' of expectation and assumed ways of being and behaving. We want to find out if this is the case in universities and whether there are hidden expectations (invisible /differentiated pedagogies/knowledge) for

all or different types of students. Also we will explore the existence and thus the control exerted over students and learning, through, for example, "distancing" and the "professorial code" (Bourdieu 1988)

The research has adopted a quasi ethnographic approach employing in-depth interviews, participant observation, and longitudinal case studies. An adapted grounded theory approach has been employed in analysing the data. The paper is based on an analysis of questionnaire data and in-depth semi-structured interviews with 60 participants, 10 lecturers, and observations across all sites of the research.

Thursday
6th September
4.40 – 6.00pm

SYMPOSIUM PRESENTATION

Opening doors to mathematically-demanding programmes in Further & Higher Education 2

Chair: J. Williams, University of Manchester

Discussant: Dylan Wiliam, Institute of Education

Abstract: This symposium is the second of a linked pair which draws together findings from an ESRC-TLRP Widening Participation project: *Keeping open the door to mathematically-demanding F&HE programmes*'. This research compares two approaches to teaching AS mathematics in the FE (16-19 years) sector in England: an inquiry based applied programme known as 'Use of Mathematics' and traditional AS mathematics. Use of Maths involves mathematical modelling, use of technology and coursework and therefore, offers a potential contrast with 'traditional' classroom pedagogic cultures. However, we are aware that classroom culture is influenced by a complex of factors and differences between the pedagogic practices afforded by these programmes are not wholly distinct.

The project addresses the following questions:

- How effective is Use of Mathematics in comparison to matched traditional mathematics programmes in promoting learning outcomes for 16-19 year old students?
- How can different cultures of mathematics learning and teaching offer different learning outcomes and mathematical identities for socio-culturally differently positioned students (class/gender/community)?

The project involves a large quasi-experimental study which provides outcome measures for students' perceived self-efficacy in use of mathematics, disposition to enter HE and disposition to study mathematically demanding courses in HE. This runs alongside multiple case-studies which are designed to (i) capture the classroom contexts which serve to mediate individual students' participation and their perceptions of participation in mathematics, and (ii) track the various trajectories of participation of the individual students. With this approach we aim to develop an understanding of how students' learning outcomes are connected to their identities as mathematical learners and mediated by the classroom activities in which they participate.

This second symposium will discuss the project's methodological approaches and findings from the quasi-experimental study. Geoff Wake will present an account of the framework used to analyse the relationship between teacher types/orientations, pedagogic practices and their use of interweaving narratives within lessons. Julian Williams will discuss the development of two soft outcome measures used in the quasi experimental study. These relate to students disposition to enter HE and their disposition to study mathematically demanding courses in HE. Thirdly, Maria Pampaka will present quantitative analyses of soft learning outcomes (maths self efficacy, disposition to enter HE and study mathematically demanding courses in HE) differentiated by AS programme, GCSE grade and other background variables. All three papers will be considered by the discussant, Dylan Wiliam.

Paper 1**Pedagogic practices and interweaving narratives in AS Mathematics classrooms**

Authors: Geoff Wake, Laura Black, P. Davis, P. Hernandez-Martinez, M. Pampaka, G. Wake, University of Manchester

Abstract: This paper reports on analyses of individual AS Mathematics lessons as part of our research into the effect classroom cultures and pedagogic practices have on individual students' emerging identities as learners and users of mathematics. Our investigations into these students' experiences have been carried out in the ethnographic tradition that include video and audio recordings allowing analysis to focus on different aspects of the activity observed. Here we pay particular attention to how teachers mediate the mathematics (i) using a range of different pedagogic practices, and (ii) by interweaving them in different narrative forms.

Our immersion in what Brousseau called 'the milieu' of different mathematics classrooms leads us to note that these classrooms often appear very different due to the use by teachers of a range of different pedagogic practices, e.g. the monological transmission of information; whole-class discussions; 'modelling' an answer to an exam question; playing a 'game' in pairs; group discussion of a problem, etc. These appear dominant in setting a 'tone' for the classrooms of different teachers related to their beliefs, in particular: transmissionist, discovery and connectionist beliefs/orientations (Askew et al., 1997). These practices also appear to differentially support relational or instrumental understanding of their pupils (Skemp, 1976).

We illustrate some of these practices in three lessons in which: (i) a "traditional" transmission pedagogy is dominant, (ii) a mix of practices, led by a teacher who is an advocate of connectionist teaching approaches, and (iii) the teacher emphasises practices of 'application' of mathematics and 'use of technology' by learners. We highlight the different qualities of student engagement particularly in terms of teacher/student and student/student interactions in these cases. Further, via a narrative analysis we view the connection between a teacher's 'practices' and 'beliefs' as a storyteller (Bruner, 1996).

We illustrate how the teachers present the new mathematics by interweaving these practices with two different genres of narrative: "mathematical" and "social", according to the category of narrative coherence. We analyse how each teacher organises the "story"



of their lesson in these two genres using the "social narrative thread" in an attempt to connect with their students 'everyday' world and knowledge, which they run alongside, and at times interconnect with, the "mathematical" world and 'scientific knowledge' (in Vygotsky's sense of the everyday and scientific).

We discover that, within a lesson, these two narratives, each have their context and plot, at times reflect each other closely and at other times diverge. We exemplify this for the three lesson cases with the results: (i) a strong social narrative can give motivation for the mathematical development, but alignment with the mathematical narrative is not always strong, (ii) sometimes distinct 'episodes/scenes' closely align social and mathematical narratives giving the same "message".

Finally we discuss how the mathematical narrative, manifested in key episodes of the lessons, much like scenes in a movie, reflects the teacher's own subject matter and pedagogical knowledge and beliefs of the mathematical content at issue (Shulman, 1987).

Paper 2**Development and validation of two 'soft' outcome measures: Disposition to enter HE and disposition to study mathematically demanding subjects in HE**

Authors: Julian Williams, Laura Black, P. Davis, P. Hernandez-Martinez, M. Pampaka, G. Wake, University of Manchester

Abstract: This paper is based on quantitative data from the ESRC TLRP research project on widening participation in HE, 'Keeping open the door to mathematically-demanding F&HE programmes'. We particularly draw on the responses to a questionnaire administered to students undertaking AS Maths and AS Use of Maths courses, and focus on the development and validation of two new instruments for the "soft" measures of students' dispositions towards HE and further studying mathematically demanding subjects.

The economic significance of mathematics and the shortage of mathematically well-qualified students and graduates (i.e. the 'Mathematics Problem') is strongly emphasised by recent reports (i.e. Smith, 2004). Hence, we need to understand how mathematics can become more accessible to students, especially those students for whom AS/A2 mathematics is a barrier to progressing into mathematically demanding courses that confer social, cultural and economic capital. The general aim of the research project is to understand how to widen participation in mathematically demanding subjects generally, but particularly for our 'target' students, i.e. those students who are at the margins of continuing with maths.

Towards this end we encountered the need for measures of students' 'perception of intention to study in HE', and additionally measures of their intention to persist in study of mathematically-related topics in Further and Higher Education. To our knowledge there is as yet no existing measure of intention to persist in the study of mathematically related topics in F&HE. Nor is there a general measure of intention to enter HE that has been validated in F&HE that meets our requirements. However, there is an eclectic but relevant literature that informs the development and validation of such educationally socio-culturally sensitive measures (i.e. Eley and Meyer, 2004; Hoyles, et al, 2001).

The first instrument, namely 'disposition to enter HE' consists of four statements eliciting students' perceptions about going to university and the expectations of others about this possibility (family, friends, teachers). The second instrument consists of 6 items aiming to capture students' dispositions towards studying mathematically demanding subjects in HE. The items included in both instruments are presented to students in a multiple choice format and have various numbers of response categories. This had direct implications for the selection of the appropriate measurement model to be selected when calibrating these instruments. Validation was performed by employing the Rasch Partial Credit Model (Bond & Fox, 2001) on a pilot sample of the project (N=314) and suggested robust measures. Some problems appeared regarding the HE disposition instrument, because of sample

characteristics, i.e. high tendency of the particular group to report a disposition of “going to HE”. However, these problems seem to be overcome with the main study sample. We will report on both these results in the paper. We plan to use these validated soft measures as explanatory variables for exploring the effectiveness of different FE maths programmes, as well as a predictor of students’ future decisions / choices at UCAS. We finally anticipate that these instruments will have utility in the wider widening participation research community.

Paper 3

Measuring the ‘effectiveness’ of two distinct AS Mathematics courses using ‘soft’ disposition and self efficacy measures

Authors: Maria Pampaka, Julian Williams, Laura Black, P. Davis, P. Hernandez-Martinez, M. Pampaka, G. Wake, University of Manchester

Abstract: This paper presents the results from the first phase of the quantitative analysis of the survey data gained from the ESRC TLRP research project on widening participation in HE, ‘Keeping open the door to mathematically-demanding F&HE programmes’. In this paper we address the first research question of the project which focuses on measuring the effectiveness of distinctive maths courses. We particularly ask “How effective is “Use of Mathematics” (UoM) in comparison to matched traditional “Mathematics” AS (ASTrad) programmes in promoting learning outcomes (LO) for 16-19 students?”

We partly drew on social science literature on widening participation that suggests a positive disposition towards a subject, especially their self-efficacy in relation to the subject studied (Bandura and Locke, 2003) and personal commitment to success is often decisive in persistence with study. In particular we ask (i) How does ‘effectiveness’ vary with measures of affective and cognitive LO? And (ii) How does ‘effectiveness’ vary for different groups of students (e.g. classified by gender, SES, family education, postcode, college-type).

Here we present the results of a quantitative analysis of the value added to the ‘soft’ learning outcomes established through the project (at this point we have to disregard the ‘hard learning outcome of mathematics attainment scores”, since these will not be available by the date of the conference). Hence, we focus on ‘mathematics self-efficacy’ scores, from a new instrument already validated (see Wake & Pampaka, 2007, Pampaka et al, 2007), as well as the intention to participate further in HE and study mathematically demanding subjects.

We show how these ‘soft LO’ measures differentiate by students’ AS programme (UoM versus ASTrad), prior GCSE grade and other background variables (mentioned above) by employing Generalised Linear Models (Hutcheson & Sofroniou, 1999). The soft measures will be treated as response variables, whilst explanatory variables will consist of the course and the other background variables. These models will allow the effect that each explanatory variable has on the response variable to be determined, each time. Also, any interactions that are significant can also be incorporated into the model. We will also report on the relationship between the three soft measures.

Pilot analysis (based on our sample data) revealed, for example, no significant correlation (effect) of the HE disposition measure with the Maths self-efficacy (MSE), whereas the disposition to study mathematically demanding subjects in HE was found to be positively correlated with the MSE (elsewhere we also reported on the effect of the course on MSE, a relationship we will explore further in this paper).

The main contribution of this paper regards measurements of the effectiveness of two distinctive programmes of mathematics (UoM and ASTrad) on learning using ‘disposition’ measures, for different groups of students. Implications for policy and practice will be discussed.

Friday
7th September
9.00 – 10.30am

SYMPOSIUM PRESENTATION

Continuity and Change in Lifelong Learning: Insights from the ‘Learning Lives’ Project

Chair: Professor Gert Biesta, University of Exeter

Abstract: *Learning Lives* is a large-scale longitudinal study which aims to deepen understanding of the meaning and significance of formal and informal learning in the lives of adults. What makes the project relatively unique is not only its length (a three year data-collection period; 2004-2007) and size (about 750 hours of life-history interviews with 120 adults aged between 25 and 85, plus analysis of British Household Panel Survey data), but also the fact that we combine retrospective life history research with ‘real time’ lifecourse research. The main focus of *Learning Lives* is on the interrelationships between learning, identity and agency in the lifecourse. We seek to understand how identity (including learner identity) and agency (the ability to exert control over one’s life) impact upon learning dispositions, practices and achievements; and we seek to understand how different forms and practices of learning impact upon identity and (sense of) agency. In order to do so, we examine the meaning, significance and impact of a range of formal, informal, tacit and incidental learning experiences from the perspectives of adult learners. We focus on the *transformations* in learning dispositions, practices and achievements which have been triggered by changes in the life-course. We are particularly interested in the ways in which adults respond to events in their lives and in the processes of learning involved in such responses. Such events may be *structured transitions* or they may be changes of a more *incidental* nature, including critical incidents such as redeployment or illness. Many such events stimulate encounters with new formal and informal learning opportunities. They can also result in forms of tacit learning of which individuals sometimes only become aware (long) after the event. Learning also occurs, however, in relation to the routines of everyday life, where ‘turning points’ are not immediately discernible. The four papers in this symposium focus specifically on questions of continuity and change in learning through the lifecourse by means of a discussion of learning pathways and learning careers, transitions between contexts, and questions about the opportunities for ‘biographical learning’ – learning from one’s life. Together, the papers not only document some of the main insights from the *Learning Lives* project to date, but also give an insight in the unique potential and the key challenges of a research project of this size and scale.

Paper 1

Role Configurations and Pathways: A Latent Structure Approach to Studying Learning in the Life Course

Authors: Flora Macleod and Paul Lambe, University of Exeter

Abstract: To help understand the consequences of life course decisions and events for an individual’s learning over time, we explore how various social role configurations interact with participation in formal adult learning. We conceptualise the life course as interdependent trajectories of social roles over time. We use two-stage latent class models to investigate how events in one trajectory influence the shape of other trajectories and with what consequences for learning. Our data source is the British Household Panel Survey (BHPS) which is an ongoing survey of a nationally representative sample. We use data from four waves (1991, 1996, 2001 and 2005) to map out various life course social trajectories e.g. learning, work, marriage, parenthood for three adjacent cohorts of original BHPS sample members across a 15-year period of their life span. Our first cohort was aged 20-25 in 1991 and 34-39 in 2005. Our second cohort was aged 39-44 in 1991 and 53-58 in 2005. Our third cohort was aged 58-63 in 1991 and 72-77 in 2005.

Statistical analysis estimates the likelihood of participation in adult learning at four given ages in relation to typical role configurations at that time for the sample. For example, in the case of cohort 1, at the 1991 data collection point they are aged 20-25, at the 1996 they were aged 25-30, at the 2001 they were aged 30-35, and at the 2005 data collection point they were aged 34-39. Our research design thus allows us to contrast typologies of participation within each of our cohort samples at four age stages and across a 15 year time span. Taken together, our three adjacent cohorts has allowed us to map out lives from

early to mid adulthood, mid adulthood to late adulthood, and late adulthood to old age, respectively. The collapsing of adjacent age groups into one cohort is designed to give us viable sample sizes with which to work.

Our purpose in this paper is demonstrate how we have gone about exploring the ways in which a selection of life course transitions and events cohere in significant ways with one another and with participation in learning, in particular. We will showcase how we have used a latent structure approach to identify distinctive paths of role configurations within each of our 3 cohorts that effectively characterize that particular cohort at a given age and to draw up conditional probabilities for latent role configurations.

We will then show how we have used the patterns that have emerged empirically from these analyses to

- assess the chances of a given individual being in adult learning at a given age/stage of their lives and how this is influenced by the shape of their other social role trajectories over time
- assess the extent to which people's learning trajectories vary across individuals, social groups, age groups, time and contexts and the degree to which variations found are consequential for learning, identity transformation and agency.
- explore whether a given individual has a propensity to adhere to a specific type of life path and whether normative paths exist.
- map a selection of our case study participants on to the wider patterns of life paths that have emerged and examine the extent to which they have followed a normative or deviant path

Paper 2

In/formality in Lifelong Learning Careers

Authors: *Phil Hodkinson, Heather Hodkinson, University of Leeds, Geoff Ford, Ruth Hawthorn, NICEC*

Abstract: Early learning careers literature (Bloomer, 1997; Bloomer and Hodkinson, 2000) concentrated on people's experiences of education. However, implicit in the analyses presented was an awareness of the significance of everyday lives on those learning careers, through what is often termed 'informal' learning. Furthermore, that early learning careers literature focused on relatively short periods in people's lives. This paper presents a further development of the learning careers ideas, by showing how such careers develop over much longer periods of time, and how informal learning is at least as important within learning careers as is formal learning. As Colley et al. (2003) suggest, the distinction between formal and informal learning is unclear and unhelpful in examining the significance of learning in people's lives.

The paper draws upon qualitative data from the Learning Lives research project, combining life history methods with real time longitudinal qualitative research, between 2003 and 2007. We present a small number of individual stories, showing some of the different ways

Major Schools Mailout – Don't Miss it!

Teachers' Guide and DVD on School Findings

TLRP is undertaking a major initiative to disseminate the findings of schools projects. The 'Video-assets' project, based at Bristol has produced an excellent DVD illustrating some of TLRP's ten 'principles of teaching and learning'. A Teachers' Guide has also been produced, which presents findings and principles in a more expansive way. These materials will be sent as a package to all UK schools in September. You can view these materials at the TLRP stand at BERA.

in which learning careers develop. For some people, a learning career includes virtually no formal education, after they have left school. However, even these people have often experienced some form of formalized work-based training. For others, an on-going engagement with some form of adult education has been important for one or more lengthy periods in their lives. However, in all such cases, learning outside the courses is at least as important as learning within them, and the formal and informal attributes of their learning are often closely interrelated.

In all learning careers, the balance and interrelationships between continuity and change are important, and can alter from person to person and from time to time. A person's dispositions both influence their learning, and are influenced by it. Both the learning and the person's dispositions are also influenced by their position in the world, which can and does also change, over time. It is important to understand position at a variety of scales of attention. It includes what are often termed structural concerns such as class, ethnicity and gender; geographical location; and the contexts of people's lives, such as work, family and local community. Also, as Bloomer and Hodkinson (2000) argued, dispositions are embodied, not just cognitive. This means that changes to the body, for example through aging, illness or accident, can change both a person's dispositions and their position in relation to their lives.

These changing interrelationships of formal and informal attributes of learning, and between learning, dispositions and position, demonstrate that learning can be helpfully understood as a lifelong process of becoming.

Paper 3

Resourcing Lifelong Learning: Exploring the Opportunities for Biographical Learning in the Lifecourse

Authors: *Gert Biesta and Michael Tedder, School of Education and Lifelong Learning, University of Exeter*

Abstract: One of the more intriguing findings from the interviews we conducted with adults from a wide range of different backgrounds and ages and stages of life is that they have relatively little to say about the meaning and impact of formal education when asked to talk about their life. We found that many people will talk willingly about one or more school subjects they were good at or not good at, about the teachers and tutors they liked and disliked, and about their friends and peers. Yet they say little about what knowledge and skills they acquired, or whether their ideas, attitudes or beliefs have changed. Similarly, many participants find it difficult to articulate what they have learned from their life. Even when prompted, responses tend to be clichés referring to the 'university of life' or 'experience being the best teacher.' Nonetheless, the life-stories told by our participants provide abundant evidence that people have learned from their lives and do learn from their lives and that their learning has had an impact on the ways in which they cope with important life-events.

This raises an important question. If lifelong learning is more than the acquisition of qualifications through participation in formal education; if, in other words, an important aspect of lifelong learning has to do with the ways in which people learn from their lives and, through this, learn for their lives, then we must ask what opportunities people have to engage in such processes of 'biographical learning' (for this concept see Alheit 1995; Alheit & Dausien 2002) and how such opportunities and the access to them are structured differently for different individuals at different ages and stages in their lives. We must ask also what kind of discursive and social resources might help people to learn more effectively and pro-actively from their lives and in what kinds of institutions and communities can we find such resources (see rugger 1995). In this presentation we explore these questions through a discussion of aspects of the life stories of several participants in our project. We focus our discussion on key transitions in the lives of our participants, because it is often around such events that learning from one's life becomes a necessity in order to learn for one's future life. Transitions are also the moments in people's lives when biographical learning is most visible.

Paper 4**Getting Stuck, Becoming Unstuck: Transitions and Blockages between Learning Contexts****Authors: Heather Lynch and John Field, Institute of Education, University of Stirling**

Abstract: What do we mean by transition, and how do transitions play out in people's learning lives? Is the notion of transition excessively vulnerable to the criticism that it is simply a linear device, and should we rather think in terms of people as experiencing alternating periods of learning, blockage and retrenchment? These issues have been widely debated in the literature of lifecourse studies, as well as more recently in studies of lifelong learning. In this paper we consider a small set of individual histories, exploring the dynamics which in some cases have resulted in significant change despite periods of blockage, and in others have led to a return to a previous lifestyle and aspirations. These examples come from life history and lifecourse interviews undertaken in a wider study of agency, identity and learning in relation to people's working lives.

In four cases, learning opportunities for some people seem a form of respite. Three are people who are currently unemployed, despite undertaking a series of organised programmes designed to build their employability; one is a skilled worker who has seen redundancies and widespread deskilling in his industry. Working life intersects with other life areas. All four have engaged with learning which they found stimulating, challenging and enjoyable, but still feel that they cannot shift from the space they are in due to family commitments, stress, ill health and the nature of the job market which seems inaccessible; their jobs are low paid or unsustainable.

In the next four cases, education has provided a way of developing a new sense of self. All come from low income working class backgrounds, and some have a history of challenging behaviour either as children or as youths. They now are working in, or working towards, careers in social care. Education has offered a legitimate way of structuring what might otherwise seem an unimaginable transition from one way of life, and one way of being, to another. All have used both formal and informal learning opportunities to build their academic and vocational profile, and to imagine their lives otherwise than in the past.

This is a small group, but their learning trajectories follow a number of patterns. The stories of those who have become stuck include the following: poor treatment by previous/present employer, living under constant stress, low expectations which are confirmed by past experiences, and affirmed by family and friends; shifting appears to threaten the stability of their family situation. The stories of those who have made visibly significant changes in the direction of their lives tend to narrate a situation of forced change (redundancy, the need to earn an income), membership of a social network through which opportunities emerged, family support, positive affirmation from employers, positive experiences in employment, and personal readiness to leave some attachments and identities behind. In these cases, people's social, occupational and emotional history appears to play a greater part in determining whether these people could indeed make a transition than the quality of the formal learning experience. The question is how people might unlearn the lessons of their own history in order to open up the possibility of choices for change.

Students as Co-Researchers in externally driven research projects. Turnaround or tokenism? An illustrative example from an ESRC/TLRP project: Consulting Pupils in Assessment for Learning

Presenters: Leitch R., Gardner, J., Mitchell, S., Odena, O., Lundy, L., Galanouli, D., Clough, P., Queen's University Belfast

Abstract: Research literature on students as researchers demonstrates a spectrum of constructive ways in which students are being actively engaged in school and classroom action inquiries. Such studies report significantly positive outcomes for students, their schools and the research process (e.g. Groundwater-Smith, 2005; Fielding & Bragg 2003; Rudduck, *et al.* 2003). The main tensions in these examples seem to lie in the degree to

which students themselves are action researchers in their own right - genuinely setting the research agenda as well as carrying out the data collection and analysis. Increasingly, however, within externally driven agendas for change and improvement, action research is being appropriated by policy makers/developers to facilitate teachers in developing new skills and in tailor-making initiatives to their own school contexts. One such initiative on the Northern Ireland (NI) policy agenda is Assessment for Learning (AfL) where teachers are being supported by the local curriculum agency to improve their classroom practice. Within such an action research framework, the role for students as researchers has the potential to be significantly constrained.

This paper illustrates and discusses some of the difficulties, tensions and positive outcomes of engaging with students as researchers within a nationally funded (and therefore externally driven), university-based project¹ that has consulted Key Stage 3 students (11-14years) on their experiences of Assessment for Learning classrooms in NI. This study characterises itself as mainstream second-order action research which collaborates with teachers already engaged in developing their own practice in AfL and engages students in the process as researchers in different capacities within the project. Issues to be discussed include the use of student advisory groups, ethical negotiation, students undertaking videotaped classroom observations and their subsequent role in co-interpreting video excerpts. The paper traces the research team's struggles to embed democratic principles and practice with students within the research constraints. In the final analysis the paper assesses the fine balance of whether or not such collaboration with students is simply tokenistic or serves to illuminate '*the slow fuse of possibilities*' (Fielding and Bragg, 2003: 54).

¹ ESRC TLRP Extensions Project (NI) Consulting Pupils on the Assessment of their Learning (CPAL)

Friday
7th September
12.15-1.45pm

SYMPOSIUM PRESENTATION**From the learning and skills sector to an equitable, effective and inclusive system?****Chair: Dr Ian Finlay, University of Strathclyde****Discussant: Professor Lorna Unwin, Institute of Education, University of London**

Abstract: The TLRP project 'Impact of Policy on Learning and Inclusion in the Learning and Skills Sector' offer a symposium under the title "From the learning and skills sector to an equitable, effective and inclusive system?". The symposium provides a critical appraisal of the learning and skills sector in England, from 2001 to 2007, looking at the impact of policy on teaching, learning and assessment and inclusion during this period. Drawing on an evidence base comprised of interviews with over 100 policy-makers, interviews with over 500 learners, tutors and managers, analysis of key policy documents, and a national survey, the papers move between top-down and bottom-up views of the sector, seeking to illuminate the interactions between policy and practice.

The opening paper outlines some of the key concepts in our analysis, including arms-length regulation and policy steering in the context of Blairite 'modernisation' of public services, the role of policy levers, interactions between national policies and 'local ecologies', forms of policy translation and the role of professional agency. Next we examine how the organisation of post-compulsory education and training changed from 2001 to 2007, outlining the strengths and weaknesses of the present 'FE system'. In particular, we focus on what this means for adults and young people who have not traditionally been well served by the English education and training system, focussing on adult basic skills provision in the community or the workplace and Level 1 and 2 courses for young people in FE colleges. The third paper looks at how the pursuit of excellence has become a central feature of government reforms of the post-compulsory sector, providing a critical examination of both the objective and the means which have been proposed to reach it. These attempts to "transform" the post-compulsory sector are located within the government's new model of reform of the public services (PMSU, 2006). This paper will end by suggesting an alternative strategy. The concluding paper explores the possible dimensions of an inclusive and effective learning system drawing on recent outputs from

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the research team. This will not only be linked to current arrangements within the sector but also located within the wider context of the Government's model of public service reform, linked to arguments for 'localism' and moves to more local and democratic forms of accountability and delivery.

Paper 1

How is Policy Translated into Practice? A conceptual framework for understanding interactions between policy and practice in the Learning and Skills Sector

Authors: *Richard Steer, Frank Coffield, S. Edward, I. Finlay, A. Hodgson, K. Spours, Institute of Education, London*

Abstract: This paper outlines the major concepts that have been employed within the TLRP research project *The Impact of Policy on Learning and Inclusion in the Learning and Skills Sector*. These concepts offer ways of describing and understanding the operation and effects of government policy within the 'Further Education system' as well as providing a framework within which we can think about how this sector of education could operate as a more effective and inclusive system in the future. Our framework draws upon a range of theoretical perspectives which include theories of governance and public service reform (e.g. Newman, 2001), the operation of policy instruments (Kooiman, 2003), the multi-layered trajectories of policies (Ball, 1993) and the spaces that are left for deliberative decision-making (Hajer and Wagenaar, 2003; Raffe and Spours, 2007). These different concepts are applied in a study of the impact of five prominent policy levers within the learning and skills sector – namely, targets, funding, inspection and quality improvement, planning and initiatives.

In addition to conceptualising the dominant models and assumptions of policy making in the sector, we have also sought to conceptualise the impact of policy from the bottom-up perspectives of individual institutions, senior and middle managers, tutors/trainers and learners. Based upon interviews with policy-makers and practitioners at each of the major levels within the sector we argue for the use of more holistic approaches to understanding the impact of policy which move beyond a narrow focus on individual institutions to consider the role of 'local ecologies' of providers operating within specific geographic, social and economic contexts, cf. Jupp (2005) and Stanton and Fletcher (2006). The role of professional agency vis-à-vis government policy is stressed through the concept of policy translation and a consideration of the crucial role played by staff professionalism and values which can lead to forms of 'strategic compliance' (Shain and Gleeson, 1999) and 'ethical gaming'. Examples drawn from research with 24 sites of learning in London and the North East are presented to illustrate the different interactions between policy and practice which we describe.

Paper 2

All Change: from 'learning and skills sector' to 'FE system' 2001-2007

Authors: *Dr Ann Hodgson, Richard Steer, Frank Coffield, S. Edward, I. Finlay, K. Spours, Institute of Education, London*

Abstract: If prizes were given for responsiveness to change, then those working in what used to be called 'the learning and skills sector' but is now referred to as 'the FE system' would undoubtedly sweep the board. Since 2001 and the establishment of the Learning and Skills Council with responsibility for promoting, organising and funding all post-16 learning (with the exception of higher education), there has been a constant stream of policy documents, initiatives and structural changes affecting the sector. This has led to a highly complex education and training landscape which, although employing thousands of staff and affecting the lives of 6 million learners (LSC, 2006), is not well understood, even by those who work within it.

In this paper we use primary and secondary data to examine two major questions:
How has the organisation of post-compulsory education and training changed as a

result of recent policy?

How might we characterise the new 'FE system' and what are its strengths and weaknesses in terms of learning and inclusion?

The paper takes our first 'snapshot' of the learning and skills sector published in 2005 (Hodgson et al. 2005) as a starting point for analysing changes that have occurred during 2006 and 2007. We draw on the theoretical work of policy analysts such as Ball (1994), Clarke et al. (2000) and Steinberg and Johnson (2004), as well as our own earlier conceptual work, to make sense of over 100 in-depth interviews with national, regional and local policy-makers carried out during the period 2004 to 2007, together with responses to a national questionnaire administered in early 2007. We will also make reference to the over 500 interviews carried out with learners, tutors and managers in 24 learning sites in London and the North East.

The first part of the paper is devoted to a description of recent policy changes and their effects on the organisation of post-16 education and training. This is followed by an analysis of how the new 'FE system' operates at national, regional and local levels, using the voices of key policy actors at all three levels to illustrate points made. Throughout the paper we examine the organisation of learning opportunities from 'bottom up' as well as 'top down' by taking into account the voices of teachers, managers and learners who have experienced the effects of policy at first hand, as well as those of the policy-makers initiating and interpreting policy. In particular, we focus on the way the new 'FE system' affects adults and young people who have not traditionally been well served by the education and training system in this country. The paper concludes with some pointers for the future direction of the system.

Paper 3

"Universal Excellence? The Uninformed in Full Pursuit of the Unobtainable"

Authors: *Professor Frank Coffield, Richard Steer, S. Edward, I. Finlay, A. Hodgson, K. Spours, Institute of Education, London*

Abstract: The pursuit of excellence for all has become a central feature of government reforms of the post compulsory sector and two official documents, published in 2006, one by the Quality Improvement Agency (QIA), and the other by the Learning and Skills Council (LSC), produced a set of ideas and initiatives to achieve this objective. This paper will critically examine both the objective and the means which have been proposed to reach it. In June 2006 the QIA (2006) issued for consultation the first draft of its Quality Improvement Strategy (QIS) and a month later the LSC published a complementary document (LSC, 2006); the first is concerned with the quality of teaching and learning in classrooms and the latter with the performance of institutions. Both documents are clearly inspired by a genuine concern to improve the quality of learning and skills in the sector, but they contain some fundamental weaknesses in common as well as other specific faults. Both documents aim to transform the sector by providing "excellence for all" and yet neither has an explicit model of change nor a theory of learning. Both also contain unrealistic expectations of the next wave of initiatives, without conceding the serious problems created by the previous set. Some of the perverse consequences may be unintended; but unforeseeable, they are not.

The QIS is not so much a strategy as a series of lists; and its definition of excellence fails to mention what is to be developed, maintained and delivered. The three criteria for judging the success of the strategy are responsiveness, effectiveness and efficiency, but equity is not considered to be as important. The QIS also includes a list of definitions but, revealingly, it contains no definition of learning. The second text to be examined from the LSC is highly prescriptive and interventionist: systems of performance management are to be "robust", standards will be "demanding", a new category of "underperforming" is to be introduced and self-assessment is to be "rigorous and robust." But who is to decide whether colleges have assessed themselves in a sufficiently "robust" manner? No answer

has been forthcoming so far but it is highly unlikely to be the colleges themselves or their peers. The new LSC Framework twice claims that it will judge performance against “absolute” rather than relative standards, but the LSC will be assessing the quality and levels of performance which are matters of relative judgment.

These attempts to “transform” the post-compulsory sector need to be understood as part of the government’s new model of reform of the public services. The new approach attempts to learn from the mistakes of the past; for example, the increase in bureaucracy, the stifling of innovation, the creation of perverse incentives, and the disempowerment of professionals. The new model is also an implicit admission that top-down management (eg targets, funding, and short-term initiatives) has been excessively employed and policy makers are now searching for new levers with which to “drive” services on to “excellence.” This paper will end by suggesting an alternative strategy, which will be based on the findings of our ESRC project into “The Impact of Policy on Learning and Inclusion in the new Learning and Skills Sector.” Preliminary suggestions can be found in Coffield (2006).

Paper 4

From a Learning and Skills Sector to an Effective and Inclusive Learning and Skills System: Key Dimensions of Reform

Authors: *Dr Ken Spours, Richard Steer, Frank Coffield, S. Edward, I. Finlay, A. Hodgson, Institute of Education, London*

Abstract: This paper, reflecting the final outputs of the TLRP research project “The impact of policy on learning and inclusion in the Learning and Skills Sector” (LSS), asks the question ‘how can the current LSS be further reformed to become an effective and inclusive learning system capable of meeting the learning needs of all learners and social partners?’

The paper will start by making the case for further reform, which is important at a time when those within the sector have experienced constant change (Edward et al, 2006) and may need convincing that more is required. Drawing on both national and local research carried out during the period 2004-7, it will be argued that further change will have to build on factors that have led to improved performance within the LSS since its formation in 2001 while, at the same time, addressing underlying problems, limitations and contradictions. Despite the joint efforts of professionals and policy-makers in the LSC and its neighbouring agencies, our research suggests that the LSS continues to operate top-down performance management with a reliance on the use of arms length policy levers that can produce perverse outcomes, high transactions costs and exclude the most vulnerable learners.

The development of the idea of a more effective and inclusive learning system will be linked to current arrangements within the LSS and also located within the wider complex political and governance landscape of the Government’s centralising model of public service reform and moves to greater local and democratic forms of accountability and delivery (e.g. Newman, 2001; Lawson, 2005; Blears, 2006; Ranson 2003). Within these historical and wider contexts, the paper will go on to explore the possible dimensions of an inclusive and effective learning system drawing on recent outputs of members of the research team together with the views of key actors within the LSS surveyed during 2007. Key dimensions of reform to be discussed will include: debates about the fundamental purposes of post-14 education and training; concepts of learner identity and learner need; developing inclusive systems for learner progression and sustainable learning; the role of professionals, communities of practice and their relationship with learners and other partners; the concepts of partnership, ‘strongly’ collaborative institutional relationships and area planning of provision; the balance of relationships between national, regional and local powers of decision-making; dimensions of democratic accountability, representation and popular involvement; the potential of a social partnership model and the role of the labour market in education and training.

The paper will conclude by examining issues of transition from a ‘sector’ to a ‘system’ and,

in particular, the way in which the policy process is conducted. We will argue that it is difficult to see a more inclusive learning system emerging without the support of a more collaborative and deliberative policy process that creates ‘space’ for the various partners at all levels of the system to come together with shared power to resolve problems and build future systems.

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Home and Away: risk, familiarity and the multiple geographies of the HE experience

Presenters: *John Clayton, University of Sunderland, Gill Crozier, University of Sunderland, Diane Reay, University of Cambridge, Lori Colliander, University of Cambridge, Jan Grinstead, East Durham and Houghall Community College*

Abstract: Whilst it is recognised that location plays an important role in the ‘choice’ of institution amongst those enrolling on Higher Education (HE) courses, particularly for working class and minority ethnic students (Reay et al. 2005), the manner in which these geographies and the forms of identity which are constituted through them, are transferred and transformed through the HE experience remains relatively neglected. With reference to qualitative research conducted across two academic years with working class students in two different types of HE institution⁴, this paper assesses the relationship between the rooted geographies of ‘home’, and the academic, social and spatial routes taken once these students have begun their courses. In doing so it addresses how familiarity, inflected by class positionings influence the experience of non-traditional students as they adapt to these new environments.

In order to address the manner in which experiences of HE are classed, but also placed, this paper draws upon case study material, largely based upon a series of interviews with two working-class students attending two different types of HE institution. The first of these is a post-1992 university in the North of England and the second an old university in the Midlands. In doing so the intimate ties between classed identities and the spatial contexts through which they are reproduced are demonstrated, offering an analysis of the socio-spatial experiences brought into these two institutions as well as those played out within the respective HE environments. The research addresses the inter-relation between these two sets of experiences through the conceptual lens of ‘risk’ as developed by Beck (1992), specifically in terms of the correlation between the class positioning/geographies of home of the students in question and the forms of risk taken into consideration, encountered and/or averted whilst at university.

For working class students involved in the study the importance of the familiar and what is known is critical in dealing with the risks involved in coming to terms with an environment which may be quite alien to them given their specific geographies of home and individual circumstance. For some this is quite clear in the choice of university, it’s proximity to home as well as the need to find something to connect with or relate to whilst at university. It also often involves the maintenance of a link with home, whether this be through living at home, regular visits, or mediated communication, while for some there may not, over time, be such a need to hold so strongly onto the familiar with conceptions of ‘home’ and familiarity shifting in relation to identity changes. With reference to the two case study students this paper therefore indicates the sorts of issues, tensions and dilemmas faced by working class

students in the negotiation of identity, risk and security and the tactics employed in order to cope with such situations. The paper then draws to a close by asking what sort of impact the need to retain the familiar, and to keep in touch with the geographies and identities of home, might have upon the HE experiences of non-traditional students, and in particular their experiences as learners.

⁴ This paper is based upon interim findings of a 28 month Economic and Social Research Council (UK) funded study (Grant ref: RES-139-25-0208).

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Initiating and Supporting Practitioner Research in Higher Education

Authors: *Dr Naomi Irvine, Dr Patrick Carmichael, Dr Keith Johnstone, University of Cambridge*

Abstract: In this paper we describe how practitioner research activity around the theme of “Threshold Concepts” was initiated and supported as part of an ESRC/EPSRC Technology Enhanced Learning Project. We describe the context in which the research activity took place and identify the factors which appear to have contributed to practitioner engagement in theorised research and development activity and the discourse which has accompanied it.

One element of the project was a series of seminars involving participants with teaching and research experience across ten disciplinary areas including pure and applied sciences, social sciences, and arts and humanities. They were introduced to the idea of ‘Threshold Concepts’ (defined by Meyer and Land, 2006, as concepts which are transformative, irreversible, integrative, bounded and often troublesome) and were then invited to identify potential threshold concepts in their own disciplines. While participants were encouraged to explore both teacher and learner perspectives on threshold concepts, the need for a set methodology was de-emphasised, and instead they were provided with reviews of relevant literature and rich accounts of prior activities by researchers in specific disciplines. This was achieved through presentations and small group discussion within the seminars together with ongoing support from project researchers.

By the second seminar in the series, participants had produced case studies of potential threshold concepts which had drawn on student and staff interviews, documentary analysis, focus groups and questionnaires. Participants were able to present their approaches and emerging findings to a progressively broader ‘graded public’ - initially within small groups, then across the broader participant group, and then in larger seminars. The case studies will ultimately be published as part of a project publication. We draw on these case studies and participant accounts of their construction in order to illuminate the features of this project which contributed to their engagement in what for the majority was their first experience of practitioner research.



We were aware from seminar discussions that participants conceptualised their involvement in different ways; while for some it provided a means of initiating changes in practice at faculty, department or course level, others couched their involvement in terms of their own professional development or intellectual curiosity. Some participants argued that reflection on practice was an intrinsic and necessary part of that practice, and for these individuals, participatory and developmental approaches were easier to initiate and incorporate into organisational practices. It was evident that research methods had emerged from the discourse around these varied conceptualisations of the ‘point of focus’ - in this case, threshold concepts.

We discuss the implications of our experiences for the initiation and sustainability of practitioner research more generally in HE. We draw attention to the importance of promotion of a culture of enquiry rather than simply fostering less specific ‘collegiality’; critical in this is the identification of ‘points of focus’ which provide a starting point but which may be understood and operationalised differently by participants. At the same time, this culture needs to have structures and processes which encourage flexible and free engagement and creative treatment of problems. Perhaps most critical is a recognition that research approaches and methods emerge as part of the conceptualisation of the problem or through discourse around these points of focus. The development of appropriate methodologies for reflecting on and developing that practice needs to be part of critical and reflective practice, not part of a rigid, externally generated research model.

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Fit for purpose evaluation in education research should consider the requirements for establishing descriptive causation.

Presenter: *Mark Newman, Institute of Education, London*

Abstract: There are many ongoing debates about methods of evaluation in education research one of the most contentious of which continues to be how evaluations should be designed. This paper seeks to make a contribution to this debate by making the case that a fitness for purpose approach to educational evaluation needs to include consideration of the requirements of demonstrating descriptive causation (Newman2006).

Any consideration about which methods are optimal for evaluating the impact of an educational programme needs to take into account the nature of the question that is being asked. The phrase ‘impact’ contains the often implicit claim, that any ‘result’ found is ‘caused’ by the educational intervention.

The most common form of causal explanation is based on four principles (Blaikie, 2000):

- There is a temporal order in which cause must precede effect
- There is association that requires that the two events occur together
- There is elimination of alternatives in order to be able to claim that the effect was due to the specified intervention and not something else.
- Causal relationships are made sense of in terms of broader theoretical ideas or assumptions.

A substantial part of the history of social science research methodology has been concerned with how best to design studies which meet these four principles (Oakley, 2000). It is argued that a pragmatic way to proceed is to attempt to design evaluations that meet the four principles outlined above by minimizing as far as possible the many different threats to validity that might arise in the design and conduct of any educational evaluation. Cook and Campbell (1979) identified many different threats to the validity of studies and organized them into four groups. Of these it is threats to internal validity which are a key concern in terms of generating descriptive causality. Threats to internal validity are arguably largely technical in nature and occur in every study whatever the concepts used in whatever context. As such they are amenable to technical solution (i.e. through study design) within an individual study.

The remainder of this paper will focus on discussion of ways in which the various threats to internal validity may be minimized through study design using as an example a study that aimed to evaluate the impact of Problem Based Learning in a Continuing Nursing Education programme (PBLCNE) (Newman, 2004). This study will be used to illustrate how the randomized experiment is a very efficient strategy for minimizing threats to internal validity in the sense that the comparatively simple strategy of random assignment simultaneously minimizes several different threats (Cook, 2003). The study will also be used to demonstrate how randomised experimental designs do not by themselves offer a means of minimizing all threats to internal validity. They are not without their limitations and great care is required in both their design and execution (Oakley, 2000).

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Northern Ireland beginning teachers' experiences of induction: the 'haves' and the 'have nots'

Presenter: Lesley Abbott, University of Ulster

Abstract: The induction of beginning teachers presently occupies a significant position on educational policy agendas (McNally & Oberski, 2003). It is a crucial dimension in the formation of a teacher and one upon which an emergent career is built. Current induction arrangements vary throughout the United Kingdom, and opinion appears divided as to what constitutes a relevant, satisfactory and fulfilling induction experience. It is acknowledged, however, that the provision of effective support is a complex matter (Draper et al., 2004), a situation greatly exacerbated in Northern Ireland by the dearth of permanent teaching posts for graduates. In 2003/04, just 22.5% of graduates obtained permanent posts (ETI, 2005), the remainder in temporary or part-time teaching, or in other employment entirely. Although induction in Northern Ireland shares many similar characteristics of the England and Wales school-based model, the General Teaching Council (NI) is currently moving to have a guaranteed induction year, as in Scotland.

This paper is based on a three-year, ESRC-TLRP project on values in teacher education, investigating a range of student teacher experiences during initial teacher education (ITE) (primary and post-primary), and tracking them through induction and their first year of early professional development (EPD). It is on the second of these stages that the paper focuses. It explores, specifically, Northern Ireland beginning teachers' views and experiences of induction. Questions cover their experiences of registering and 'signing off' induction; the nature, extent and value of the support provided by schools, the local education authorities, the GTCNI and others during their first year of teaching, the challenges met; and their perceptions of personal and professional development. Not least, it examines the variation in experience resulting from the very differing types of employment.

A sample of the Postgraduate Certificate in Education (PGCE) 2004-05 cohort at the University of Ulster were asked, through one-to-one interviews, about their induction experiences. The 40 student teachers were selected through proportionate stratified random sampling, using the variables of gender, religion, age and school sector.

The findings showed highly contrasting and fragmented experiences. Those in permanent positions registered for, were appropriately supported, and successfully completed induction; those who were temporary, part-time or substitute teachers did not. The kind of sustained support needed, therefore, to build on the Career Entry Profile, to develop individual action plans and to compile a portfolio of professional development was entirely dependent upon the nature and status of the graduate teacher's employment.

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