Teaching and Learning RESEARCH BRIEFING

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Putting Knowledge to Work:

Integrating work-based and subject-based knowledge in intermediate-level qualifications and workforce upskilling

Approaches to the longstanding challenges of integrating subject-based and work-based knowledge have focused on how learning can be 'transferred' from one setting to another, usually from theory into practice. We have developed a fresh approach that concentrates on different forms of knowledge and the ways in which these are contextualised and 'recontextualised' as people move between different sites of learning in colleges and workplaces. This new thinking is grounded in an exploration of Foundation Degrees, Higher National Diplomas, NVQ Level 5 and non-accredited workforce upskilling.

- Recontextualisation of knowledge takes place in and across the programme design environment; in teaching and learning; in the workplace and in learners as they make sense of the whole. → Chains of recontextualisation can be forged by practitioners across all these environments to maximise the integration of subject-based and work-based knowledge.
- Multi-faceted partnerships with industry can embed knowledge flows within and between programme design, teaching and learning, the facilitation of learning, workplace practices and the learner. → Putting knowledge to work depends on the articulation and facilitation of links between supply and demand, not on whether the programme is supply-led or demand-led.
- Recontextualisation is assisted by 'gradual release' of knowledge and responsibility across two dimensions: predictability and time. → Programmes can sequence engagement with knowledge through the gradual release of responsibility from 'educator' to learner in educational and workplace contexts.
- 'Industry educators' serve two roles as knowledge brokers: supporting the design of new programmes and facilitating learner engagement with the programme. → Industry educators bring real-world perspectives into the learning process to complement educational requirements and workplace expectations.
- The structure of Foundation Degrees enables the dual accreditation of professional qualifications in ways that are valued by learners. → Programme structures can be developed with the flexibility to achieve a critical mass of compatibility between professional body and course requirements.

T·L·R·P TEACHING & LEARNING RESEARCH PROGRAMME

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The research

The aim has been to improve practice in work-based learning by researching how the subject-based and work-based aspects of a curriculum or learning programme can articulate with one another more effectively in programmes such as Foundation Degrees, higher level NVQs, HNDs and non-accredited workforce upskilling. In a research field that has come to be dominated by the consideration of organisational arrangements and technical issues that accompany credit and quality assurance frameworks, questions of knowledge, teaching and learning have been relatively neglected. Through our use of the concept of recontextualisation, we have introduced fresh thinking that can find ways into longstanding and seemingly intractable problems.

We have explored ideas and current practices in 'putting knowledge to work' through extensive fieldwork. We identified six interesting attempts to articulate aspects of the relation between theory and practice in new ways. This resulted in six detailed case studies. They show, through the concept of recontextualisation, what is involved in successfully moving knowledge from disciplines and workplaces into a curriculum, and from a curriculum into successful pedagogic strategies and learner engagement in educational institutions and workplaces. In each case, commentaries and recommendations show the chains of recontextualisation and the lessons that can be drawn for programme design and practice.

How can knowledge more effectivey be put to work?

Seven principles involving chains of recontextualisation

1 Multi-faceted partnerships with industry
One of the major challenges facing any work-based programme is to involve industry actively. The Media Practice Foundation Degree created a multi-faceted industry-college interface which resulted in a strong, focused curriculum reflecting the disciplines and realities of production in film, video and television. Its key principles, strategies and practices can be used by anyone who is keen to actively involve employers, educational institutions and learners in the recontextualisation process.:

- Set up an Industry Steering Group consisting of industry members with experience of course design, and academic members with up-to-date industry experience
- Course design mirrors the industry
- Recruit industry-active staff
- Use teaching strategies that mirror the industry.
- Use some assessment strategies that mirror the industry
- Employ a work placement coordinator who is active in the industry.

2 Gradual release
How can learners be helped to use theory as a resource to understand, evolve and even change practice? The principle of 'gradual release' is not new. What is new is the way in which it has been deployed by practitioners in colleges and by workplace managers, supervisors and mentors to sequence the knowledge elements of their programme so as to develop learners' theoretical understanding alongside their skill development, and to support learners to move from a college to a practice environment via the gradual iterative release of responsibility from teacher to learner to supervisor to learner to mentor to learner.

In the case of Aircraft Engineering this has involved:

Sequencing	Criteria
'Academic elementals' first	This knowledge underpins the programme and is recycled and developed in subsequent modules. Low susceptibility to change: 'these modules don't change much unless someone comes and debunks the theory of relativity'.
Followed by 'Practice-based + Academic modules'	These modules build on the content of the Academic elementals. The modules are subject to change through the introduction of new technologies or new materials: 'we have to keep our eye on them'.
Followed by 'Systems + Skills modules'	These modules draw together and build on knowledge from earlier modules: 'All background material for this module will have been covered in other course modules'. Increasing orientation outwards to the operational environment. The modules have to be 'continuously monitored for change'.

The gradual release of responsibility from teacher to learner involves learners being given incremental opportunities across two axes: predictability and time.

Learners strengthen their skill repertoires through extended exposure to tools and equipment with which they are already familiar.
"The level of work tasks and standards of workmanship expected will increase progressively as the course and this module are completed".

They learn by making mistakes in a controlled, closely supervised and sheltered environment, but one that progressively resembles the workplace itself.
"The dummy plane stage is simulated – it's a safe, transitional stage".

They move from predictable to more unpredictable tasks where some of the complexities of real-life work (and its artefacts) are built into the learning experience.
"Students will need to keep a logbook of all the practical work completed…"
In these ways they learn to operate under the pressures of the operational environment.
"The operational environment is extremely daunting for some people – students' confidence can be destroyed in an instant if they go in too soon".

3 Enacting new knowledge
One of the biggest criticisms of the use of 'reflective' strategies in work-based learning programmes is that they are primarily designed to assist worker learners to gain accreditation or recognition for their existing knowledge, rather than to support them in generating and using new knowledge.

The 'learning conversation' approach, which was an important feature of management development in the glass industry, offers a way to escape from this dilemma. Its key premise is that someone with extensive industry and facilitation expertise can design a conversational approach that not only recognises, but also expands, employee learners' knowledge and puts it to work.
Managers reported gains in "the confidence in my management skills to lead a transformational process" and described how "the learning conversations facilitated my 'systems thinking' – I think differently now". "Since I realised that associations and publications had been expanding my knowledge base – I now read in a more purposeful way – I read for new knowledge".

4 Utilising company resources
Here company resources (documentary and human) are made available to learners, illuminating and exploring company practices and developing learners' 'essential skills.' Learners often think that there are 'fantastic resources' in companies that can be drawn upon and that the process is enriched if:

- Learners, mentors and managers are informed well in advance of programme details and resources required and available.
- Learners are allocated time during work to make the contacts and follow them up.
- The company sets up and maintains an intranet site in the workplace where

some of the commonly-used resources are stored.
- Teachers use resources to debate theoretical concepts in action, and do not take them as givens.

Some learners' examples:
- "I used historical data from claims systems at work when completing a risk survey at college - I used the data to assess risk measures, potential future risks, etc".
- "My year group organised a meeting with a Commercial Property claims team to understand more about commercial insurance".

An example of a double loop: where the company resource is taken over the boundary into the college and then back into the workplace:

"For one college assignment we had to present a problem in the workplace which had impacted on customer service and explain how we might resolve the issue. I selected a problem concerning a database which had many blockages. With the agreement of my manager, I was able to take screenshots of the database and collate user feedback in order to present the problem and some recommendations. Thereafter, my manager insisted that some of them be adopted; it was an excellent opportunity for me. It was a piece of work that I wouldn't have had the time to complete in the workplace but through investigation and concentration during college time I could complete the work successfully".

5 Diagnosing company problems and solutions
The accurate identification of company problems and potential solutions is a crucial aspect of programme design in provider-client partnerships between education and industry, especially where the interventions required are highly specific and specialised.

Consultants embed themselves in the culture of the client organisation in order to 'understand the business'. This involves internal (organisational structure, strategy, policy, key players, real issues and 'hot spots', metrics) and external (drivers, influences, changes) issues. Briefing meetings and site visits include meetings with key personnel and targeted beneficiaries – they are held up, down and around the supposed problem. The 'pitch' of the intervention is clarified and commitment from all parties is gained, especially from senior management.

Once the company problems have been identified then the potential solution can be planned. Consultants can design an intervention that has a clear, shared purpose and a close fit to the culture. The intervention can be crafted jointly with the sponsor. In the International Training Service's case, the design process was iterative: 'they come up with design – discuss – research and rework - come back with more detail'. Two key messages emerged: Design in senior management involvement to ensure sustainability, and never lose sight of the main problem or objective.

6 Using industry educators as knowledge brokers
Use of staff with up-to-date industry experience is a feature of every case.

***How* do industry educators make a difference?**

- "They present information in ways that makes it easy to understand".
- They bring credibility to a programme.
- They have experienced a similar qualifying pathway to learners.
- They are aware of the challenges learners face and will face in future.
- They understand the cultures and circumstances of the sector
- They tell 'war stories'.

Evidence demonstrates the power of learning from others' experiences and mistakes.

7 Relationships with professional bodies: dual accreditation
Dual accreditation requires practitioners with seasoned understanding of professional body requirements and regulations, QAA requirements, university validation processes and undergraduate modular schemes. Issues arising for partnerships include:

- Tensions between the QAA's concern for a 'higher education' student experience and the professional bodies' concern for closeness to their immediate requirements
- How pedagogy can become a mutual concern for the programme team and the professional body
- Can the professional body relax its requirements for assessment by examination and engage with the broader range of assessment methods ?

Here are two examples of successful approaches from Foundation Degrees:

In Aircraft Engineering the decision was taken to keep the two forms of assessment separate largely because the EASA requirements are enshrined in law as is a pass mark of 75% and a commitment to multiple-choice examinations. This means that although the syllabi content are compatible, the assessment methods are not. Learners study one schedule but are assessed twice.

In Financial Services dual accreditation took one of three forms: 1) module assessment may resemble the professional body specification; 2] professional body assessment may be 'softened' (in negotiation] so that e.g. shorter essays take the place of formal examinations and/or assessment rights are conferred to the provider (usually on a pilot basis for a number of years); 3] some modules are assessed using FD methods and the professional body accepts this because the former is at a higher level.

Dual accreditation is complex and time-consuming, but learners appreciate its careers benefits. The key is to avoid subsuming one qualification into another with different purposes and to be aware that changes at the level of assessment affect teaching and learning practices.

Major implications

This project has demonstrated that the focus of Government policy on 'demand-led' education and training and on 'skills' needs to be supplemented by a focus on the relationship between supply and demand and on the knowledge that underpins skill formation in educational and workplace settings.

Putting knowledge to work to meet educational, sectoral, organisational and learner needs depends on the articulation and management of relationships that are built between supply and demand. Building such relationships is facilitated by dialogue at the local level, involving stakeholders such as educational institutions, professional institutions, employers and employer organisations. It requires government agencies to have autonomy to vary targets and funding streams to support new initiatives, and the creation of more 'industry educators'.

The longstanding language of 'transfer' hinders rather than facilitates such developments. It implies that knowledge and practices can be mechanistically transferred between contexts.

Through the concept of recontextualisation we have shown what is involved in successfully moving knowledge from disciplines and workplaces into a curriculum, and from a curriculum into successful pedagogic strategies and into learner-employee engagement in educational institutions and workplaces. We have identified a number of pedagogic strategies that facilitate this outcome. Some strategies are a 'smart' re-working of long-standing pedagogic practices. Thus the 'gradual release' of knowledge and responsibility builds engagement and confidence. Other strategies, such as the use of 'industry educators,' supplement educational expertise by bringing real-world perspectives into learning without losing sight of educational requirements.

We have also shown that non-formal and unaccredited consultancy programmes support the recontextualisation of knowledge and the development of important forms of capability. Unlike accredited programmes they have no need to mesh professional qualifications and course expectations. Nevertheless, both types of progamme rely on the development of a critical mass of compatibility between all stakeholders.

Further information

Six detailed exemplars of putting knowledge to work in programmes range from Foundation Degrees to non-accredited senior staff development programmes.

Foundation Degree in Aircraft Engineering
A programme for career entrants that addresses a skills shortage by meshing a Foundation Degree with professional licensing requirements.

Faculty of Engineering, Kingston University in partnership with
KLM UK Engineering, Norwich

Management Development in the Glass Industry
A programme to accredit and extend senior managers' expertise

Glass Training Ltd in partnership with companies in the glass, fenestration and automotive glazing industries.

Foundation Degree in Media Practice
A programme to assist (mainly) mature learners to access a flexible, contract-based employment-labour market.

School of Media, London College of Communication, University of the Arts, London

Company Training Scheme with Higher National Diploma
A programme for new entrants that embeds a Higher National Diploma within a company training scheme.

Commerzbank, City of London in partnership with the European College of Business and Management, London

Foundation Degree in Financial Services
A Foundation Degree with dual accreditation designed by a college and local employers to meet skills shortages in the industry

City College Norwich with Norwich Union Insurance and Marsh UK

Leadership Development
A pilot programme within the Ministry of Defence to develop strategic leadership capability and capacity in highly specialised staff.

International Training Service Ltd with DG Helicopters, Defence Equipment and Support, Ministry of Defence.

The warrant

The research has been sponsored by the London Chamber of Commerce and Industry Commercial Education Trust (LCCICET) and the Centre for Excellence in Work-based Learning for Education Professionals at the Institute of Education, University of London.

Over the 30 months of the project, interviews have been conducted in colleges and workplaces, with learner and employees during and after their programmes, with programme designers, course tutors, supervisors and workplace trainers. In the six programmes selected for in-depth research observations were carried out during more than 53 days of site visits. The authenticity of the findings has been cross-checked with practitioners, both in the field and through our advisory group. Preliminary findings from the project have been refined through review by practitioners and other informed commentators as well as though seminars and specially arranged workshops.

London Chamber of Commerce and Industry
COMMERCIAL EDUCATION TRUST

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Work-based learning for education professionals

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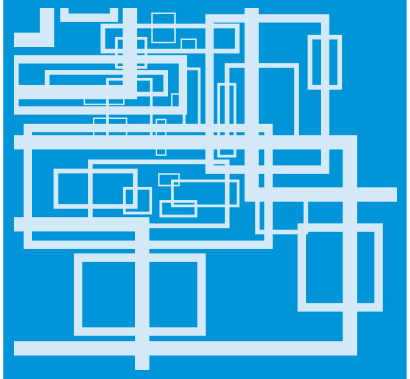

TLRP involves some 90 research teams with contributions from England, Northern Ireland, Scotland and Wales. Work began in 2000 and the Technology Enhanced Learning phase will continue to 2012.

Learning: TLRP's overarching aim is to improve outcomes for learners of all ages in teaching and learning contexts across the UK.

Outcomes: TLRP studies a broad range of learning outcomes, including the acquisition of skill, understanding, knowledge and qualifications and the development of attitudes, values and identities relevant to a learning society.

Lifecourse: TLRP supports projects and related activities at many ages and stages in education, training and lifelong learning.

Enrichment: TLRP commits to user engagement at all stages of research. It promotes research across disciplines, methodologies and sectors, and supports national and international co-operation.

Expertise: TLRP works to enhance capacity for all forms of research on teaching and learning, and for research informed policy and practice.

Improvement: TLRP develops the knowledge base on teaching and learning and policy and practice in the UK.

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