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Applying teacher knowledge: What and how using ‘Putting Knowledge into Work’ conceptual framework


Abstract:
This article investigates a new conceptual approach to understanding how vocational teachers in the post compulsory education sector in England, usually with occupational experiences, use pedagogic knowledge in teaching practice. The approach consists of a theoretical framework in two parts: ‘Putting Knowledge to Work’ (PKtW), an abstract concept which uses ‘recontextualisation’ process to describe how people cross work settings, and a specific structure to apply PKtW to teaching in the sector.

The article uses two case studies of dental hygiene (from a related research project) and accounting for non-accountants to discuss how the conceptual approach may be applied to understanding how teachers negotiate, using teaching knowledge, between different work settings. The final section offers an appraisal of PKtW and discusses the implications of the framework in terms of: teacher training; work settings; support structures; and continuous professional development.

Document type:

Suggested key terms:
Teacher knowledge; Teaching; Putting Knowledge to Work

Introduction
The publications of the New overarching professional standards for teachers, tutors and trainers in the lifelong learning sector (Lifelong Learning UK 2007), and documents such as the Foster Report (2005), and Further education: raising skills, improving life chances (Department for Education and Skills (DfES) 2006), called for better teacher training. For the purposes of this article, further education (FE) refers to post compulsory education, usually associated with the education of people over the age of 16 in England till 2015, after which the age will increase to 18 (Great Britain 2008).

The call for the improvement of teaching and learning in FE is not new. Colley, Wahlberg and James (2007) advocated that the last fifty years beginning with the Crowther Report (1959) had been repeated calls for teaching and learning improvements. Various factors were identified for such calls and they included three types of changes relating to: drivers (i.e. reasons for improvement in teaching and learning); levers (i.e. mechanisms for improving teaching and learning); and pedagogical change (i.e. arguments for how teaching and learning be improved). In all these attempts for improving teaching and learning, the nature of the
effectiveness of teaching and learning was not addressed. Coffield (1998) questioned this omission with the following statements, which is still relevant to date:

“In all the plans to put learners first… there is no mention of a theory (or theories) of learning to drive the whole project. It is as though there existed in the UK such a widespread understanding of, and agreement about, the processes of learning and teaching that comment was thought superfluous. The omission is serious and, if not corrected, could prove fatal to the enterprise.”

Coffield (1998 p 4)

This paper seeks to contribute to the debate of ‘learning and teaching processes’ by providing a new conceptual framework of how teachers with occupational experiences in FE use their knowledge. The subject of how teachers learn to apply knowledge has been discussed by writers such as Bathmaker and Avis (2007), Bernstein (2000 and 1990), Finlay (2008), Loo (2007), Shulman (1987) and Shulman and Shulman (2004). Specifically with FE, writers who incorporated teachers’ previous occupation/work-related experiences and ‘learning process’ included Gleeson (1981), Viskovis and Robson (2001), Hyland and Merrill (2003), and Robson, Bailey and Larkin (2004). This learning process from the perspective of this article includes the process where teachers learn to apply their knowledge using their past occupational experiences to teaching. The knowledge may be acquired through other means such as formally accredited courses. These FE teachers would then need to apply their subject knowledge together with pedagogic knowledge to their teaching practices.

This paper adds to this debate by: a. focusing on the types of teaching knowledge required to teach, and b. using a framework to understand how the types of teacher knowledge are applied in teaching practices by FE teachers with occupational experiences. It uses a combination of a generic concept of ‘Putting Knowledge to Work’ (PKtW) developed by Evans, Guile, Harris and Allan (2010) and a specific structure to apply PKtW to teaching in the FE sector. FE may include teaching settings such as FE colleges, work based organisations and adult and community locations. The disciplinary knowledge refers to their professional/vocational knowledge, which is gained from formal courses or work practice, may it be in organisations or self-employment. This practice may include working in their specialist fields. The pedagogic knowledge refers to knowledge, which is used in teaching.

Although data on teachers' work/occupational experiences in England is not easily accessible, however, the Statistical First Release (SFR) (Learning and Skills Council 2005) provides information on learner statistics in post-16 education and training in England for the academic year 2004/05. The SFR includes data on three teaching areas of: further education, work based learning and adult and community learning. The most popular areas of learning include work-related programmes such as health, social care, information and communication technology, engineering, technology, manufacturing, visual and performing arts, media, hospitality, sports, leisure and travel. These work-related courses are in contrast to less work-related qualifications such as General Certificate of Secondary Education (GCSEs), and Advanced (A) (consisting of Advanced Subsidiary (AS) and A2) levels, which are offered mainly by schools. GCSEs are the major qualifications taken by students.
who are aged 14 to 16 in England. A level qualifications are traditional routes for those aged 17 and above who aim to progress onto higher education.

By implication, teachers teaching on such work-related courses in the FE education sector are more likely to have occupational experiences than their counterparts in schools.

This article has five sections. Introduction section outlines the contexts, aims and structure of the article. The second section – Forms of Recontextualisation - reviews the relevant theories by Bernstein (2000 and 1990), Barnett (2006) and van Oers (1998) and the third section – Putting Knowledge to Work and an FE Structure: Theoretical framework - discusses the PKtW concept, which provides a new understanding of how FE teachers apply their knowledge in classroom settings. The fourth section – Discussion and Applications of the Theoretical Framework – posits an understanding of how the framework relates to post compulsory teaching. Two case studies, one from a small-scale project and another from a textbook source, are used to discuss the application of teacher knowledge through different work settings in FE. A final section finishes with an appraisal of PKtW and a discussion of the implications of the theoretical framework for teaching.

Forms of Recontextualisation

This section traces the development of ‘recontextualisation’ by Bernstein (2000 and 1990), van Oers (1998) and Barnett (2006) before proposing the PKtW concept (Evans et al, 2010). A review of these concepts is relevant as they form the main underpinning concepts of PKtW. Bernstein, van Oers and Barnett use recontextualisation as a concept to explain how knowledge may be applied in various settings. Bernstein (2000 and 1990) viewed recontextualisation from the position of pedagogic practice. van Oers (1998) argued that recontextualisation might be found in more than one setting and that there was a possibility of moving from one setting to another. Barnett (2006) advocated recontextualisation could occur specifically in teaching and vocational settings.

Recontextualisation

Bernstein used codes, elaborated and restricted, to understand the relationships between different classes in society. He wanted to explain why those from the working class were disadvantaged compared with those from the middle classes. He used his code theory to examine pedagogic practices in schools, which included: the type of knowledge (curriculum) to deliver to learners; the way in which it was taught (transmission); and the approaches in which knowledge was evaluated (evaluation/performance) (Loo 2006a). The two varieties of knowledge are vertical and horizontal (Bernstein 2000). Vertical knowledge is knowledge that is explicit, coherent and systematically structured. It can be found in subject specifications.

Horizontal knowledge relates to everyday. It is verbal and has context and locality. It is tacit in nature. It relates to past teaching, employment and life experiences of a teacher. Loo (2006a) acknowledged there were criticisms with this type of knowledge classification. For the purposes of this article, one such example might relate to the vertical knowledge of mathematics, acquired by a person in his/her apprenticeship in an engineering firm (i.e. alongside a specific location and context to form horizontal knowledge) and then re-trained as a teacher where
coverage of mathematics formed part of the subject specifications (vertical knowledge) of his/her training. The distinction between the two types of knowledge was questioned, as Bernstein appeared not to have anticipated the inter-changeable nature of knowledge.

Referring to transmission – the second phase of Bernstein’s pedagogic practices – this involves how knowledge is transmitted to a learner and how this knowledge is acquired and applied in teaching practice. Bernstein viewed the recontextualisation process as a way of relating curriculum (i.e. the ‘what’) and transmission (i.e. the ‘how’). He defines recontextualisation in the following manner:

“It is a recontextualising principle which selectively appropriates, relocates, refocuses, and relates other discourses to constitute its own order and orderings.”
Bernstein (1990 p184)

He provided more details of recontextualisation as follows:

“The recontextualisation rules regulate not only selection, sequence, pace, and relations with other subjects, but also the theory of instruction from which the transmission rules are derived.”
Bernstein (1990 p 185)

With the recontextualisation process, Bernstein provided guidance on course implementation in which subject specifications or contents of a programme might be selected in terms of what to teach, the order in which they were taught, the duration that covered the contents and how the contents were related. The pacing, selection and coverage using appropriate teaching methods would need to take into account the learners’ past knowledge and experiences (horizontal knowledge). If appropriate, accredited prior learning facility would need to be available to formally acknowledge past knowledge.

The final pedagogic stage relates to evaluation or performance (Bernstein 1990) where a learner is assessed through a variety of methods.

The three stages as indicated by Bernstein are not directional. From the context of a teacher in the post compulsory sector, s/he with past industrial experiences may start from the basis of having acquired vertical knowledge (curriculum) and professional contexts (horizontal knowledge) to transmission and performance stages.

What are the criticisms of Bernstein’s theories? One may be the classification of knowledge as discussed earlier in this section. Two is that the theories are written from the compulsory education context and their relevance to the post compulsory sector may be questioned especially in the light of FE teachers having past industrial experiences and how these might affect knowledge application. Three relates to the apparent lack of details of the interaction of vertical (curriculum) and horizontal (teachers’ past experiences) knowledge in terms of delivery in the transmission stage (Loo 2006b). Four refers to the limitation of recontextualisation where curriculum is ‘modified’ for transmission purposes with the possible exclusion of other work settings. The last criticism leads us onto the
next supporting theory by van Oers (1998), who intuited the possibility of more than one setting.

**Horizontal and vertical forms of recontextualisation**

van Oers (1998) invoked the notion of contexts from the socio-cultural theories expounded by Vygotsky (1987) and Leont’ev (1978) where he defined ‘contexts’ as:

“...the interconnected collection of factors that codetermine the structure and meaning of human actions. Context is a result of a personal (mental) or social act of interpretation of an activity setting (contextualising), trying to bring the determining factors under conscious control.”

van Oers (1998 p 137)

From an FE teacher’s perception of teaching, contexts might refer to factors such as his/her teaching approaches, knowledge and interpretation of how content is to be delivered, learners’ attitudes to learning and relationships with him/her as teacher, curriculum for delivery, and environment in which teaching is carried out.

van Oers (1998) posited two forms of recontextualisation. They are: horizontal (HR) and vertical recontextualisation (VR). HR may be described as:

“When a new situation is recognised as an opportunity for an alternative realization of a well-known activity, then this activity is actually recontextualised. This activity could be called a horizontal recontextualisation.”

van Oers (1998 p 138)

From the point of view of an FE teacher, this might be an application of a teaching method that s/he had seen from a colleague. It involved using a known activity (e.g. a teaching method used by a colleague) in a new setting (e.g. the teacher’s pedagogic session).

Turning to VR, he defines it in the following manner:

“As a consequence of the principle of activity development, new problems in an activity may arise and become new pivots of action patterns. These action patterns often lead to the invention of new goals, new means for action, and new strategies. These new actions develop into new activities and new contexts for acting that, although emerging from a well-known activity, are not directly a new, alternative realisation of that activity. This process of progressive continuous contextualising is a form of vertical recontextualisation.”

van Oers (1998 p 138-139)

With reference to FE, a teacher might apply his/her industrial experience as a travel guide to teaching travel and tourism. The application of knowledge in a new setting using different teaching methods in order to cater to his/her learners who might not have industrial experience required new approaches, goals and implementation strategies.

One may venture to speculate that the use of a combinational effect by van Oers is a direct reference to Bernstein’s theories on knowledge classification and the recontextualisation process. The above theory propounded by van Oers is generic for the purposes of working in a professional/vocational context and
teaching. However, it established the notion of movement between settings such as workplace and teaching institution. The next type of recontextualisation provides a specific focus on teaching and vocational practices in FE.

‘Double’ recontextualisation

Barnett (2006) investigated vocational working and teaching which have a relevant focus to FE teaching. This specificity of teaching and workplace settings in an FE context is an advancement on van Oers’ (1998). As indicated earlier in the Introduction section, FE teaching covers a significant amount of vocational areas such as travel and tourism, health and social care and engineering.

He proposed two types of recontextualisation processes namely: Reclassifactory Recontextualisation (RR) and Pedagogic Recontextualisation (PR). The term ‘Double Recontextualisation’ was coined by the author and not by Barnett, who used the term, “two distinct recontextualisation processes” (Barnett 2006 p 147).

As regards RR, Barnett defines it as follows:

“This process of reclassificatory recontextualisation creates what might be characterised as a ‘toolbox’ of applicable knowledge. This is how the knowledge bases of professions such as engineering and medicine are assembled.”

Barnett (2006 p 147)

Barnett suggests that disciplinary knowledge needs to be recontextualised for vocational/professional use in work settings by people such as doctors, engineers, or dental hygienists.

Turning to PR, Barnett describes this as follows:

“For this recontextualised knowledge to be incorporated into vocational pedagogy, a further process of pedagogic recontextualisation is required. An important point following from this is that, whereas academic pedagogy involves a single, albeit complex and multiply-determined process of pedagogic recontextualisation of disciplinary knowledge, the pathway between vocational pedagogy and disciplinary knowledge involves two distinct recontextualisation processes.”

Barnett (2006 p 147)

From a pedagogic perspective, a teacher such as a dental hygiene teacher uses recontextualised disciplinary knowledge (via RR) from several disciplines (e.g. anatomy, physiology, psychology). Issues surrounding the depth and level of disciplinary knowledge, selection and pacing of delivery and teaching methods to complement practical knowledge (such as taking oral history and cleaning of teeth) to carry out professional work need to be considered in such PR process.

Barnett opens up the discussion of recontextualisation as two distinct processes from the perspectives of occupational and teaching settings. He implied that a teacher with professional/vocational experiences has to “boundary cross” in order to teach in another setting. His focus is on disciplinary knowledge. Other aspects of teaching knowledge are not sufficiently detailed in neither the processes nor the complexities of boundary crossing sufficiently explained. For a more nuanced approach of how knowledge may be used in different work settings, we
turn to PKtW, which offers four types of recontextualisation in this complex boundary crossing of work settings.

**Putting Knowledge to Work and an FE Structure: Theoretical framework**

The previous section traces the development of the forms of recontextualisation from Bernstein’s approach of one setting, to van Oers’s concept of movement between settings, and to Barnett’s distinctive double recontextualisation posited in vocational practices and FE teaching. In this section, PKtW provides a more nuanced approach to knowledge application over a range of work settings. A supportive structure in the second part of the section provides a framework to apply PKtW to FE teaching.

Evans et al describe their theory from the following standpoints:

> “Understanding the flows of knowledge in programmes involving substantial elements of work exposure goes beyond typologising forms and features of knowledge to analysing the knowledge logics that underpin them and how knowledge is changed as it is ‘put to work’ across contexts of learning and practice in universities, colleges and workplaces.”

Evans et al (2010 p 246)

The writers view contexts in terms of settings or places as well as “‘schools of thoughts’, the traditions and norms of practices, the life experiences in which knowledge of different kinds is generated” (Evans et al, 2010 p 246). They draw on theories of recontextualisation by Bernstein (2000), Barnett (2006) and van Oers (1998) in which these forms of recontextualisation form an integral part of practice which may vary from one setting to another may that be teaching institutions or occupational workplaces. Evans et al explain recontextualisation in the following manner:

> “For knowledge generated and practised in one context to be put to work in new and different contexts, it has to be re-contextualised in various ways that simultaneously engage with and change those practices, traditions and experiences. Our starting point is that re-contextualisation is multi-faceted pedagogic practice. It refers to the idea that concepts and practice change as we use them in different settings.”

Evans et al (2010 p 246)

The writers use the notion of 'chains of re-contextualisation' to explain how such 'work' practices are performed in various settings. The four kinds of re-contextualisation are: Content Re-Contextualisation (CR); Pedagogic Re-Contextualisation (PR); Workplace Re-Contextualisation (WR); and Learner Re-Contextualisation (LR).

Content re-contextualisation refers by Evans et al as:

> “This is a process whereby codified knowledge is selected, simplified, recast and made more teachable and learnable for particular learners, as part of the programme design.”

Evans et al (2010 p 246)

CR has a strong similarity with Bernstein’s notion of recontextualisation from the perspective of curriculum (i.e. the ‘what’).
Turning to PR, the writers define it in the following manner:

“PR takes place as vertical and horizontal forms of knowledge are organised, structured and sequenced into learning activities, options, modules, for the purposes of effective learning and teaching.”

Evans et al (2010 p 247)

PR offers a resemblance of Bernstein’s recontextualisation with respect to the transmission process where the ‘how’ is its main focus i.e. the vertical knowledge is ‘modified’ into knowledge that can be delivered in a classroom setting base on recontextualisation principles.

With WR, the writers view it as:

“WR takes place through the workplace practices and activities that support knowledge development, and through the mentorship, coaching and other arrangements that enable learners/employees to engage with and learn through workplace environments.”

Evans et al (2010 p 247)

One of Barnett’s distinct recontextualisation process – RR – has resonances with Evans et al PKtW WR. They went on to explain some challenges in this process in the following way:

“In the workplace, knowledge is embedded in routines, protocols and artefacts. The key challenges include learning (i) to participate in workplace activities and use artefacts, and (ii) to use work problems as a further ‘test-bench’ for ‘curriculum’ knowledge.”

Evans et al (2010 p 247)

The final kind of re-contextualisation – LR – is explained by the writers as:

“Learner re-contextualisation takes place through the strategies learners themselves use to bring together knowledge gained through the programme and gleaned through working with more experienced people in the workplace. These strategies sometimes involve learners in the creation of new knowledge, insights and activities.”

Evans et al (2010 p 247)

Evans et al (2010) indicated that this kind of re-contextualisation was important in the learner’s development for his/her professional/vocational identity.

As the PKtW theoretical framework by Evans et al (2010) is generic in nature and not conceptualised specifically to teaching in further education, the second aspect of the framework is a structure to apply PKtW concept to teaching in the FE sector (Figure 1 FE Structure and Recontextualisation). It uses the concept of boundary crossing as subscribed by Evans et al (2010) above, Hager and Hodkinson (2009), and Finlay (2008). Learning is viewed as applying knowledge across settings such as workplaces, teaching institutions and between similar institutions.

The structure has two dimensions. The vertical dimension takes into account the occupational experiences from industry/professional-related workplaces and teaching experiences in teaching institutions such as FE colleges. The horizontal dimension takes into account three areas relating to their working practices in industry/profession and teaching institutions. Three areas are: knowledge
acquisition (where knowledge such as discipline or professional knowledge and teaching knowledge are acquired through formal or informal means), practice (where the range of knowledge and experiences are applied in workplaces), and continuous professional development (CPD) (where some professional bodies such as those in engineering and accountancy require post professional qualification development and in the FE teaching).

In respect of FE, teachers, full and part-time, are required to undertake CPD each year ranging from a minimum of 6 hours for a part-time teacher to at least 30 hours for a full-time teacher as from 1st September 2007 (The Further Education Teachers’ Continuing Professional Development and Registration (England) Regulations). This requirement came from an earlier White Paper (DfES 2006) and in support of the Leitch Review (2006), which called for an upskilling of skills in a global economy. The above developments prompted an inclusion of the CPD area in this structure (Fig. 1).

The divisions of this structure are viewed as fluid and not distinct areas of demarcation and that the movement from one dimension to another and within one dimension is dependent on a teacher’s experiences. The theoretical ideas of PKtW can be applied within this structure in the next section.

The rationale for these three areas was derived from the author’s past projects experiences on teacher knowledge and identities using semi-structured interviews for (both projects each with) a sample of eight teachers in the post compulsory sector. These two projects, of one-year duration each, were funded by the Work-Based Learning for Education Professionals Centre based at the Institute of Education, University of London. The related research questions to the two projects included: what were the knowledge types that were required for teachers in the post compulsory sector (with occupational experiences) to carry out their teaching practice, and how did teachers in the post compulsory sector (with occupational experiences) see themselves respectively.

Discussion and applications of the theoretical framework

The section seeks to investigate the previous theoretical concepts in the context of FE teaching and vocational/professional experiences. The section may be structured under four headings, which relate to post compulsory teachers' previous occupational experiences, pedagogic curriculum, pedagogic activities and learning perspectives. They include: Teachers’ Occupational Experiences; Course Structure; Implementation of Teaching; and Learner's Learning and Application in Workplace. Before starting the discussion under the four headings, it is useful to provide two differing teaching contexts. These two contexts may also be referred to in the rest of the discussion.

The first example, which has been referred to in the previous section, is derived from one of the author's past research projects on teacher identities. The aim of this project was to investigate how professionals in areas such as dental hygiene, fine arts, health and social care, dance, information technology,
homeopathy, palmistry, radio production, architecture, adult numeracy, engineering became teachers in their respective specialisms. It was based on a small sample of eight participants (some with more than one area of specialism), who volunteered to take part in the project and using semi-structured interviews to illicit rich qualitative data. This example is used merely for illustrative purpose to frame the discussion using a ‘case study’ context in this article.

The first example, from the above project, is based on the interview of a dental hygienist. She was practicing as a dental hygienist in a dental clinic alongside teaching dental hygiene and psychology to undergraduates in a dental hygiene institution. The teaching programme is a three-year course for those seeking to obtain a first degree and a professional qualification in dental hygiene.

“They [learners] haven’t got that level of experience of never been in that situation [working as dental hygienists] before where they had to examine the patient and take details down. We have set ways to do it because it is a professional qualification. We also have a huge bulk of syllabus to cover. It is a very pressurised course and I don’t teach all aspects of the course. So when I bring them together as a group, I then have to ascertain how much ability they have to do it. I don’t know how else we can deal with the practical session because if you are given it to do in an afternoon, taking patient’s oral history short of sitting there and be bored … Because they have already done medical history, I am really going back finding out and a bit of a re-cap knowledge there and then saying off we go.

...There are three aspects of course assessments: theory where they have to do a lot of written papers, clinical tests they have to do and vivas in a total of 24 tests.”

The second example is from Dyson (1997) on the teaching of accountancy to non-accounting learners:

“Accounting books written specifically for the non-accountant are also often extremely demanding. The subject needs to be covered in such a way that non-accounting students do not become confused by too much technical information. They do not require the same detailed analysis that is only of relevance to the professional accountant. Some accounting books specially written for the non-accountant go to the opposite extreme. They outline the subject so superficially that they are of no real practical help either to examination candidates or to those non-specialists requiring some guidance on practical accounting problems.”

Dyson (1997 p ix)

Using the above quotations on the subjects of dental hygiene and accountancy, the discussion on how PKtW and supporting structure, which is specifically framed for FE teaching (Figure 1) may be used to provide deeper insights into how teachers and learners apply their knowledge to teaching and learning.

**Teachers’ Occupational Experiences**

Teachers teaching on vocational courses in FE are likely to have previous occupational experiences as implied by the SFR statistics and discussed by such writers as Gleeson (1981), Viskovis and Robson (2001), Hyland and Merrill (2003), and Robson, Bailey and Larkin (2004). These experiences refer to Occupational/Professional Workplaces are located on the vertical dimension of figure 1. These experiences would also relate to the horizontal dimensions of ‘Acquisition’ and ‘Practice’.
The acquisition of vocational or professional knowledge might have taken place in formalised accreditations such as vocational-related degrees or professional qualifications. Using the above two examples of dental hygiene and accountancy for non-accounting users, subject knowledge of dental hygiene might be acquired on a first degree on dental hygiene in a higher education institution. For those non-accounting users, a professional qualification such as the Chartered Institute of Bankers would be available for those wanting an understanding of accounting in a finance-related job. There are also first degrees in business and finance where one can acquire such subject knowledge. This knowledge, though not necessarily related to the workplace whilst undergoing the process of subject knowledge acquisition, would need to be modified when applied in workplaces. This form of recontextualisation is associated with LR where content/subject knowledge is acquired and modified for application. Writers of teaching knowledge have given different typological nomenclature to such ‘subject’ knowledge.

Shulman (1987) in his seven types of classification of teacher knowledge would ascribe this as “content” knowledge with a wider definition of knowledge, understanding, skills and selection facility. This view of subject knowledge refers to the possibility of choosing knowledge for a purpose and in the context of this article, perhaps towards LR. Verloop, van Driel and Meijer (2001 p 445) extended the notion of teacher knowledge as “profession-related insights that are potentially relevant to the teacher’s activities” where “subject matter” relates to one of the six types of teacher knowledge. Their categories were used as a starting basis for analysing teachers’ interactive cognitions. This extension to Shulman’s (1987) relatively static classification indicated a conscious view of teaching knowledge situated in interactive activities which relates explicitly to Evans et al (2010) PKtW concept of several forms of recontextualisation. The last type of classification has already been referred to in the second section of this article by Bernstein. He (Bernstein 2000) viewed vertical knowledge as part of a curriculum in which subject knowledge would be found. Vertical knowledge is explicit, coherent and systematically structured and that this knowledge can be transmitted through the LR process from the perspective of the PKtW framework. In short, subject knowledge as with other forms of knowledge, for the purposes of this article, is viewed as a type of knowledge, which is used in the process of a form of recontextualisation. During LR, the knowledge type will be modified in order that it can be applied to specific situations.

Referring to the two examples above, the relevant process might be LR where a learner of dental hygiene or accounting would need to use strategies to marshal, understand and acquire new knowledge and understandings. The experiences of undergoing such accreditation would also inform their insights into the new area especially on a professional programme where there may be specific articulation of activities. In the case of dental hygiene, this might include a specific sequence of taking oral history of a patient.

The other form of recontextualisation that was detailed by Evans et al (2010) in their PKtW concept was WR related to practice i.e. how subject knowledge would be used in workplaces. These workplaces might include dental clinics for dental hygienists and organisations (such as banks, retailers, and finance sectors), which require staff with knowledge of accounting. The subject knowledge would
not be applied in a straightforward manner. The user would need to recontextualise by understanding the situation in the workplace and selecting the appropriate knowledge for potential application. The application may also be mediated by the organisation’s approaches to working. These may include information technology (IT) systems and hierarchical protocols. For a non-accountant in a role like manager, who deals with budgets and accounts-related activities, will need to be familiar with the organisation IT system and its software. An understanding of the organisation budget codes and styles of presentation of financial information that form part of the financial reporting system would also be necessary. The above aspects are used to illustrate how subject knowledge may not be easily applied at work. Subject knowledge requires further recontextualisation in order that it can be applied.

If the teacher were to remain in occupational/professional workplace, there would be a need to consider CPD. As this article focuses on teaching in the post compulsory sector, the notion of CPD will be discussed in the 'Learner's Learning and Application in Workplace' section below.

Course Structure

From the perspective of a teacher in a teaching institution setting (i.e. the 'Teaching workplace' on the vertical dimension in figure 1), s/he might start from the point as a prospective teacher on a teacher education programme before applying her/his pedagogic knowledge in a classroom. With the FE sector, those entering teaching from the vocation/occupational route might be practising as teachers and undergoing teacher training/education at the same time. This in-service training may be referred to in figure 1 as moving from 'Practice' to 'Acquisition' and back to 'Practice' in the 'Teaching Workplace' dimension. Depending on the specific circumstances of a post compulsory teacher, her/his starting base on figure 1 might vary.

Staying with an in-service prospective teacher with pedagogic experience and currently acquiring a teaching qualification, the relevant recontextualisation process is LR. The teacher will modify by selecting, simplifying, recasting her/his newly acquired pedagogic knowledge alongside pedagogic experiences. This recontextualisation process is then moved to a different setting from 'Acquisition' back to 'Practice' setting where both subject knowledge and pedagogic knowledge are used in CR. This process occurs where codified knowledge of teacher's subject knowledge (from her/his occupational background), pedagogic knowledge (from teacher education qualification) and pedagogic experiences are combined for the purpose of course design. Young (2009) gives a more nuanced approach to knowledge than Evans et al (2010) where he advocates differences between knowledge and experience. His four social differentiation of knowledge comes from a social realist viewpoint from the traditions of Durkheim, Vygotsky and Bernstein (Young 2009). From Young's argument, experience and everyday knowledge are not seen as reliable knowledge for inclusion in a course specification. Verloop et al (2001) described this as a teacher's 'subject matter oriented' cognition process where the teacher cognitively selects appropriate content knowledge to include in course design. Carlgen (1999) uses the term 'pre-active' as a phase to plan for classroom delivery where the teacher needs to interpret and develop subject/content knowledge into course specification. From the
perspective of this article, CR consists of a modification of codified knowledge (thus excluding tacit know-how such as experience and everyday knowledge) for the purposes of course design.

From the perspective of a course design for non-accountants, relevant accounting principles would be selected and recast for non-accountants in the CR process which could be more teachable and learnable for her/his learners. This CR process uses both knowledge of subject and pedagogy. Similarly, for dental hygienists, relevant knowledge on this area, including psychology, anatomy and pedagogic knowledge, will be selected and modified for inclusion in the course specifications. Pedagogic knowledge is required from the point of view of selecting and ordering in a manner that is suitable for teaching purposes rather than a combination of relevant subject knowledge in a haphazard fashion.

**Implementation of Teaching**

Staying in the 'Practice' dimension of 'Teaching Workplace' of figure 1, the teacher in FE will need to use a course specification to deliver her/his teaching sessions, having 'moved' from the three forms of recontextualisation of LR, WR and CR. In this specific dimensional setting, the teacher, using her/his subject and pedagogic knowledge and workplace experience, will need to organise, structure and sequence the course specifications for teaching. This involves converting course specifications into teaching and learning approaches and schemes of work for her/his learners. Like with the other forms of recontextualisation, knowledge will be modified for specific contexts.

In this PR process, Bernstein offers a more detailed approach than Evans et al. Bernstein (2000) specified pacing of teaching, selecting of appropriate teaching strategies for her/his learners (and implicitly, a knowledge of learners), and covering the course specifications. Government policies, teaching standards and teaching resources should be taken into account in this PR process. The inclusion of these factors is referred to by Bernstein (1990) as official and pedagogic recontextualising fields. Bernstein (1977) also specified two approaches for delivery namely: sequentially and in parallel; and explicitly or implicitly. In the case of dental hygiene, sequential delivery might mean teaching parts of the curriculum one after another or in the case of in parallel, parts of the curriculum such as psychology and anatomy alongside each other. Teaching approaches might include demonstration, laboratory work and simulated activities. Explicitly could mean teaching the curriculum in which the learners were told which part of the curriculum was being taught and with implicitly, without the knowledge of the part of the curriculum being covered.

From the perspective of a non-accountant teacher, she/he needs to think about which parts of the curriculum is selected, paced and converted into appropriate teaching strategies such as case studies, problem solving approach and lecture incorporating real life examples and supported by handouts. The depth of subject knowledge must also be reflected in the levels of the accredited programme for non-accountant learners. For example, the depth of accountancy knowledge will differ for those studying on a Masters programme for accountants and a similar programme for non-accountants.
Hobson, Malderez, Tracey, Giannakaki, Pell and Tomlinson (2008) concurred with Bernstein when they suggested that the sequencing of theoretical and practical aspects of curriculum required thinking through as this process impacts on student learning. Teachers carrying out this process of WR require reflection. This might include individual reflection or collective reflection where observing, listening and discussing with teachers in their or other teaching institutions (Meirink, Meijier, Verloop and Bergen 2009). This process of WR provides a more nuanced approach to the one offered by Evans et al (2010).

As indicated from the two examples above, forms of teaching knowledge are required in this PR process, which Evans et al (2010) did not make explicit. From the perspective of the types of knowledge involved in this PR process, Bernstein's (2000) notion of vertical and horizontal knowledge is a useful classification method. Using this classification, Shulman (1987), his vertical knowledge types might include content and curriculum knowledge (knowledge of materials) and horizontal knowledge might be general pedagogical knowledge (knowledge of strategies for classroom), pedagogical content knowledge (combination of teaching and content), knowledge of learners, knowledge of educational contexts and knowledge of educational values. Basing on Banks, Leach and Moon's knowledge types (1999), using Bernstein's classification, vertical knowledge might include subject knowledge and horizontal knowledge, school knowledge (i.e. knowledge of school contexts), pedagogical knowledge and personal subject construct (of the teacher's past teaching and learning experiences). Verloop et al's (2001) knowledge types using Bernstein's classification of vertical knowledge might include subject matter and curriculum, and horizontal knowledge, knowledge of students, students learning, and instructional techniques.

Learner's Learning and Application in Workplace

Using Evans et al's (2010) PKtW framework, this section brings us back full circle having investigated LR to begin with, to CR, to WR and to PR. PKtW was written as a generic theoretical framework and its applications in the context of FE teaching is unclear. LR process in the post compulsory sector is therefore the author's interpretation. LR is again the focus firstly from the perspective of a qualified and practising teacher in FE where she/he needs to keep up with professional teacher development (CPD), and secondly from the perspective of learners completing their courses and onto places of employment.

With a government’s requirement to carry on her/his teaching continuous professional development i.e. CPD (DfES 2006), this creates an additional dimension for recontextualisation as featured in figure 1 as ‘CPD’. This CPD dimension is posited in the teaching workplace setting.

This CPD requirement may also be a feature for teachers who belong to certain professional bodies such as the Institute of Chartered Accountants in England and Wales. In this situation, forms of recontextualisation depend on the potential application of this new knowledge acquisition and insights. If this is used for teaching, then LR, CR and PR are involved and the new knowledge and insights are occupation-related.
Returning to the first point of focus, CPD activities for teachers in the post compulsory education sector may involve acquisitions of pedagogy-related knowledge and insights such as curriculum, government policies, organisational systems, and learning theories. CPD activities may consist of research-based activities as these will enable teachers to investigate their boundary crossing and complexities in applying theories to specific contexts (Darling-Hammond 2000). CPD activities may involve a combination of all four forms of recontextualisation depending on the specific contexts of the teachers. CR is used where the new knowledge in codified format is selected, and re-formulated for used in curriculum design. PR is applied where the re-formulated curriculum is re-configured in terms of structuring and sequencing for delivery purposes. This recontextualisation process may involve incorporating newly acquired teaching strategies. It may relate to newly acquired research evidence on teachers’ learners.

From the work perspective, WR occurs through support networks such as mentoring or coaching where teachers are facilitated through new forms of engagement to improve their work practices. A supportive work environment, such as supportive line manager, enthusiastic management, understanding mentor and offers of financial assistance and time-off for engagement in this CPD activity, assists in this WR process.

Lastly with LR, strategies are needed to combine the new knowledge into work contexts. It is useful that there is sufficient space and time for teachers to reflect. This may involve thinking about it and discussing with work colleagues to examine, understand, fine-tune and try out in the classroom. As with knowledge examined in this section of the article, the new knowledge and the knowledge that is eventually applied in pedagogic contexts are different. They are different due to the processes of re-formulation and modification through the applications of various forms of recontextualisation.

Turning to the second point – the learner’s perspective – of using the new knowledge on qualifying for work applications, WR and LR are especially relevant. The processes are reversed in comparison with a qualified teacher who is updating her/his pedagogic knowledge. In using the LR process, a newly qualified dental hygienist would need to use his/her knowledge gained from the dental hygiene course and apply that in his/her work setting such as a dental clinic. He/she would need to include new contexts of work. Closely linking with WR, relying on colleagues who might act as mentors or supportive colleagues, either formally or informally, would assist in his/her being assimilated into the new work setting. Having supportive work colleagues and work environment would ease the learning experience for this new work entrant especially in areas such as organisation system of performing his/her work, types of patients, lay out and availability of dental equipment, and pacing of work patterns (e.g. duration for taking oral history of patients).

Irrespective of either perspectives (of teacher involving in CPD activity or learner entering a work setting), the relevant knowledge that is applied in carrying out work practices will be changed from its original form. This change is insightfully illustrated by a teacher who took part in the research project on how people learn to become teachers in the FE sector. This was mentioned at the start of
this Discussion section. The teacher taught dance movement to learners with a wide variety of needs from those with physical disabilities to the elderly. She discusses the changes of her teaching knowledge in the following manner:

“My professional, subject etc. knowledge become more generalised in the sense it becomes images which are wider than principles that guide my behaviour in scenarios. These scenarios could be dealing with learners with difficult disabilities and there are strategies from these generalised knowledge which are filaments or strands of similarities which can be contextualised to a specific scenario.”

**Implications for teaching**

This final section focuses on two areas: appraisal of the PKtW conceptual framework and implications for teaching. The structure as illustrated in figure 1 provided a useful framework to investigate how PKtW can be applied using professional/disciplinary knowledge over three areas of knowledge acquisition, putting knowledge to practice and CPD.

From the discussions in the previous section, PKtW has several areas for critiquing and they may be classified into four types. The first refers to the level of understanding offered by this conceptual framework. It is focused on individual users of knowledge such as teachers for their applications in more than one work settings. In that sense one might suggest that it traverses between the individual (micro level for want of a better term) and organisational types (mezzo level). The micro level is not, however, related to individual's cognition.

The second type relates to the generic nature of the conceptual framework where it can be applied to teachers in generic settings with occupational foci. Teachers in compulsory education settings, usually without vocational/professional experiences, may not be relevant in the application of PKtW. Also due to its generic nature, where in this article that has a specific focus on post compulsory teachers, a greater explication of specific teaching and occupation contexts are required to provide a more nuanced and detailed picture of the recontextualisation processes. The Discussion section tried to offset this generic nature by having two illustrative case studies.

The third area refers to the ambiguity of LR. The PKtW framework did not clarify the positioning of the parties in question and for the purposes of this article, the related parties included teachers acquiring teacher education qualifications, qualified teachers undertaking CPD and qualified learners starting in new work settings.

The final area for critiquing includes the PR process. The process, as investigated in the Discussion section, covered a wider area than suggested by Evans et al (2010) where writers on teaching knowledge (typology and applications) might be included in order to delineate a finely nuanced understanding. To sum, Evans et al (2010) suggested that these 'chains of recontextualisation' were merely spaces for understanding how knowledge might be applied in different work settings and that the four forms of recontextualisation were not stand alone processes but multi-faceted and interlocking.
The above points arising from this article are useful as they offer additional insights in teaching practices in FE. The last three points might be clarified by carrying out empirical data gathering in the future in order that PKtW could be established as a new approach to understanding how teachers apply their teaching knowledge.

In terms of the possible contributions to teaching in the post compulsory education sector, PKtW provides a greater understanding regarding how FE teachers, usually with previous occupation experiences, negotiate between different work settings and the types of knowledge that are involved in such negotiations.

The implications of this framework might involve in the training of teachers. By incorporating this new understanding into teacher education programmes, prospective teachers would have a better understanding of applying the appropriate teaching knowledge to specific work settings.

Greater understanding and collaboration between teaching institutions and occupational organisations might also be sought. Mediation between the two types of settings on behalf of teachers would only enhance the understanding of what it means to cross boundaries of vocational/professional and teaching settings.

Following on from the previous point, support structures might be established to enable a smoother transition from a practising professional to being a teacher in that professional area. These support structures might include mentoring and buddy systems where teachers might be allocated specific mentors and buddies, informally or formally, who understand and able to support this boundary crossing.

Lastly, CPD courses and workshops might be established to provide safe and supportive spaces for those who are involved in these boundary crossings. Interactions with like-minded practitioners in environments away from their work settings (might these be physical or virtual learning environments) would create a community of practice (Lave and Wenger 1991) for reflection and networking.

References


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Figure 1. FE Structure and Recontextualisation

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CPD – Continuous Professional Development