

Title: *Theorising interprofessional pedagogic evaluation: Framework for evaluating the impact of interprofessional CPD on practice change*

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Abstract

This paper outlines the development of a conceptual framework to guide the evaluation of the impact of the pedagogy employed in continuing professional development for professionals in education, health and social care. The work is developed as part of the Centre for Excellence in Teaching and Learning: Interprofessional Learning across the Public Sector (CETL: IPPS) at the University of Southampton. The paper briefly outlines the field for pedagogic research and comments on the underpinning theories that have so far been used to guide research into interprofessional learning (IPL). It maps out the development of interprofessional CPD in its specific context as part of the CETL: IPPS with its links to a local authority undergoing service reorganisation and the role of the continuing professional development (CPD) in effecting change. It then brings together a theoretical framework with the potential to explore, explain and evaluate the essential features of the model of pedagogy used in interprofessional CPD, in which professionals from education have for the first time been included alongside those from health and social care. The framework draws upon elements of situated learning theory, Activity Theory and Dreier's work (2002, 1999) on trajectories of participation, particularly Personal Action Potency. By combining the resulting analytic framework with an adapted version of an established evaluation model, a theoretically-driven, practicable evaluation matrix is developed. The matrix has potential use in evaluating the impact of pedagogic input on practice change. The paper models a process for developing a conceptual framework to steer pedagogic evaluation. Such a process and the resulting matrix may be of use to other researchers who are similarly developing pedagogic evaluation.

Keywords: *interprofessional learning; pedagogic evaluation; continuing professional development; children and family services*

Conceptual framework for evaluation of the impact of the CETL: IPPS CPD pedagogy on practice change

The purpose of this paper is to share the process involved in developing a conceptual framework to guide the evaluation of the provision of interprofessional continuing professional development (CPD) for professionals in education, health and social care services for children and families in the South of England. Our aim was to base the evaluation on a strong theoretical base so that it has the potential to link to the wider field of research into interprofessional learning (IPL) and adult learning more generally. The conceptual framework developed may be of use to others engaging in IPL research. It is anticipated that the empirical ensuing evidence from the evaluation may be used to further test and develop the theoretical concepts used.

The national context

Radical changes in the demand for health and social care in the future require a more flexible professional workforce that is able to understand each others' strengths and work collaboratively. Besides governmental drivers such as the NHS Plan and Working Together, Learning Together (Department of Health 2001b), two independent inquiries also provided leverage to suggest that more interprofessional working should take place in order to prevent serious service failures. The Bristol Inquiry (Department of Health 2001a) and the Laming Report (Department of Health & Home Department 2003), although based on two

evidently different service failures, both highlighted that ingrained professional demarcations hindered successful collaboration. The result was a commitment by the Department of Health to integrate interprofessional learning, rather than multi-professional learning¹, into pre-qualifying programmes for health and social care. However, in spite of a large number of published studies, it is widely acknowledged that the research evidence underpinning the drive for interprofessional learning is still growing (Coles, Britton, & Hicks 2004; Cooper et al. 2001; Freeth et al. 2002; Humphris & Hean 2004; Mattick & Bligh 2003; Munro, Felton, & McIntosh 2002; Reeves 2001; Zwarenstein et al. 2000), especially when focusing on pedagogical features of IPL.

The impact of policies relating to the reform and modernisation of the public services can not only be traced consistently across health and social care, but also in the education service. Besides the policies that resulted from the two inquiries, recent reforms have made an even stronger case for more collaborative, interprofessional learning and working. The Department for Education and Skills (2003) in its *Every Child Matters* (Department for Education and Skills 2003) Green Paper, the Children Act (Great Britain 2004) and in the *National Service Framework for Children, Young People, and Maternity Service* (Department of Health & Department for Education and Skills 2004) also argue for more integrated service provision. As part of the Children Act 2004, local authorities are required to set up a Directorate of Children's Services

¹ Interprofessional learning is when two or more professions are engaged in learning *with, from* and *about* each other. Multi-professional learning is when two or more professions receive, for example, shared lectures, but do not participate in interactive learning together (Freeth et al. 2002).

incorporating education, social services and partnerships with health services. Each of these Directorates is required to interpret the Every Child Matters (ECM) document in the light of their local situation and to formulate plans for the delivery of the ECM agenda in view of local needs. This is to be formalised in a Children and Young People Plan, setting out a strategic direction with targets and an operational plan to meet those targets. ECM is a national policy, but it is interpreted and operationalised in different ways at a local level. In addition to this, local schools and services within a local authority are to interpret the local authority level priorities and targets to meet the needs of their immediate catchment area or community, as well as contributing to the overall goals of the authority.

There is the potential for tremendous challenge as professionals from hitherto separate agencies are required to work in a more integrated manner. Each of the agencies involved comprise a number of different professional groups, which themselves have differing skills, knowledge and ways of working. Education brings together, for example, qualified graduate teachers, non-graduate learning support staff and educational psychologists. Others in education will include those who have a specialist role in inspection, inclusion or in an advisory capacity. Each may have a different perspective on learning and teaching. These perspectives and the relationships they engender differ to those of professionals from, for example, the Youth Service with its particular 'non-compulsory' view on 'Enjoy and Achieve'. The health service comprises a broad range of professional

groups, each with distinctive skills and knowledge. Within nursing, mental health, children, learning disability and adult nursing each have particular training and expertise. Medicine, with its longer training, fierce competition for entry onto courses and higher academic entry requirements, continues to dominate in 'a hierarchy of educational backgrounds' according to Page and Meerabeau (2004). Allied health professions such as occupational therapy, physiotherapy and podiatry each have distinct undergraduate training programmes, although interprofessional learning may form part of their education. Social care has also seen fundamental changes with the establishment of a new undergraduate curriculum. The new regulatory body, the General Social Care Council, has established a new social work degree in which there is a requirement upon educators to integrate interprofessional learning and to actively involve people who access services in the stages of the education process. Alongside this, the General Social Care Council is actively reviewing the framework for CPD within the profession.

Differences in the professional backgrounds of people working within services for children and families can be problematic; it cannot be assumed, for example, that all professionals share understanding of some of the key concepts in child development such as Attachment Theory. As outlined, differences do not just exist between services, but also within particular service directorates. To date, cultural differences, stemming from organisational structure and models of working, have been cited as the most common and obvious barrier to interprofessional working (Coles, Britton, & Hicks 2004). There have been recent

attempts to address this by identifying a 'Common Core of Skills and Knowledge' covering six areas of competence to underpin the training of all people working with children. This has the stated aim of enabling 'multi-disciplinary teams to work together more effectively in the interests of the child' (Department for Education and Skills 2007). The Children's Workforce Development Council is in the process of developing a Sector Skills Agreement as a means of identifying and addressing skill shortages across the children and young people workforce.

Background to the CETL: IPPS

The Centre for Excellence in Teaching and Learning: Inter Professional Learning across the Public Sector (CETL: IPPS) at the University of Southampton, has been funded by the Higher Education Funding Council for England (HEFCE) to promote, develop and research excellence in teaching and learning with an emphasis on interprofessional learning for public sector professionals, with a particular focus on more integrated services for children and families.

Funding for the CETL was won largely on the basis of the success of the New Generation Project (NGP). The NGP has provided IPL for undergraduates in the fields of health and social care, incorporating learning between students from eleven different professions over the duration of their programmes at the Universities of Southampton and Portsmouth. Since 2002, it has been identified as one of the Department of Health 'leading edge sites' for taking forward pre-qualifying interprofessional learning. The model of teaching and learning developed in the NGP is *facilitated collaborative interprofessional learning*

(O'Halloran et al. 2006). The NGP Longitudinal Study is a research strand, based on a positivist paradigm, which focuses on attitude change and identity formation in individuals undergoing the IPL and in a comparison group using a large scale survey. The research to date for the NGP has therefore focused particularly on the students as individuals and the impact IPL has had on the individuals, rather than on the educational interventions and its pedagogic features. It has been informed by social identity theory (Tajfel & Turner 2001), which explores individuals' identity formation as members of social (in this case professional) groups and Contact Hypothesis (Allport 1954), which explains and informs initiatives to reduce inter-group prejudice through contact under certain conditions. These theories have shaped the research design and methods used; they seek to monitor change in students' professional identity and attitudes towards other professional groups.

A major part of the remit of the CETL: IPPS is to develop interprofessional Continuing Professional Development (CPD) for professionals in services for children and families. After wide consultation with local stakeholders, it was decided to base the CPD on the pedagogic model used in the NGP, given its adaptability. One of the aims of the CETL: IPPS is to work closely with a local authority as it implements the structural and service changes in line with the Children and Young People Plan (CYPP) to meet the agenda of Every Child Matters. The CETL provides CPD to enable managers and practitioners to find ways of working together effectively to deliver the CYPP in the local context. The

CETL: IPPS therefore develops and provides facilitated collaborative interprofessional learning in form of CPD for professionals from education, health and social services. For the first time, education will be brought into the arena with health and social care for interprofessional learning.

The first CPD programme currently consists of four cohorts of ten to fifteen participants, each with a mix of middle managers from health, social care and education. The CPD takes place in six facilitated sessions (four half days, two whole days) over a period of five to six months. The sessions require participants to take part in uni-professional and interprofessional small group work as well as whole group tasks. Reflection is a key part of the learning process, as is the need for group participants to take part in group activities between the sessions, requiring face to face or email contact. The sessions are not content driven, but focus on, for example, issues of accountability and responsibility in working in dispersed teams; challenges and advantages of using a Common Assessment Framework; tools for identification of and creative approaches to challenges in interprofessional practice; and involving stakeholders in the process of change and collaboration. The course culminates in each cohort identifying a common issue they wish to address that they feel will further interprofessional practice. The issue will be based on needs of the local area and relate to the CYPP. This forms the focus of their interprofessional learning and should result in collaboratively-developed action plans for each participant to implement change in their respective profession, but with a common, interprofessionally-developed,

goal in mind. The specific issues each group addresses will depend on what emerges from the groups. However, early indication is that issues around referrals of families and children *between* services may be pertinent. If, for example, health visitors repeatedly deal with children they perceive to be in need of referral to social services and refer them on, but social services repeatedly feel that such cases do not meet *their* thresholds for referral, then there is likely to be an issue requiring shared thinking. Another example may be to address the need for a more interprofessional induction programme to be introduced across children's services and to link subsequent requirements for collaboration to part of the appraisal process.

Investigating interprofessional learning

Interprofessional learning is a complex field for research, requiring not only a focus on issues relating to learning, but also a focus on issues relating to the *interprofessional* aspects of learning. With regard to learning, it has become apparent in recent years that learning cannot satisfactorily be considered solely a matter of individual intrapersonal change. Such an approach

'has been challenged by a theoretical seachange that has seen individualistic developmental explanations of learning and development replaced by theories that foreground the cultural and socially constructed nature of learning' (Anning, Cullen, & Flear 2004) p. 1.

Research and theory development by Vygotsky (writing in the 1930s, but not available to the West until the late 1970s and early 1980s) prompted a shift towards understanding learning as something that occurs interpersonally and that is specific to its social, cultural and historical context (Vygotsky 1978; Vygotsky 1986). Learning began to be conceptualised as something that takes place amongst groups, between peers and with the more knowledgeable people in groups passing on knowledge and skills to less knowledgeable others, who in turn act upon the knowledge and skills to develop them further according to their circumstances. Since then, socio-cultural approaches to theorising and researching learning have developed. New research agendas arising from this work include the value of examining learning at the individual, interpersonal and community levels (Rogoff 2003), of considering the situated nature of cognition (Kirshner & Whitson 1997), of looking closely at the nature of interaction and dialogue involved in learning (Edwards & Mercer 1987; Mercer 1995), of investigating the communities of practice in which learning takes place (Wenger 1998) and the impact on learning of people's participation in practice (Lave & Wenger 1991). In addition, Engeström, Cole and others have developed a way of understanding and investigating learning as action within activity systems (Cole 1996; Engeström 1999; Engeström 2004; Russell 2004). Such approaches to researching learning are complex and entail a broad look at situational and relational factors.

The range of issues to be addressed is further complicated when learning involves people from a range of professional backgrounds and agencies coming together to extend their knowledge and skills. In the field of interprofessional learning, the policy drive for practice change has led, racing ahead of research and theory which might help steer the direction of travel or to fully evaluate and justify the changes taking place (Cooper, Braye, & Geyer 2004). However, research to date in relation to IPL and interagency working has identified several factors worthy of closer scrutiny. These include cultural differences in ways of working, perceptions of what constitutes good practice, differences in discourse, issues of identity and loss of identity as professional roles change (Anning 2001), differences in knowledge-base and what is permissible as 'evidence' in evidence-based practice, and differences in status (Page & Meerabeau 2004). In addition, issues of role boundaries and perceptions of the 'client', 'patient' or 'student/pupil' need to be addressed. Thus these issues address the lack of a common language and understanding. An encompassing conceptual framework for educational research would need to be capable of taking into account such elements in a coherent way, providing a means of exploring relationships between them and offering clarity whilst still capturing the complexity.

The contribution of theory: the proposed conceptual framework

Several theories have previously been used in underpinning development and research in interprofessional learning. Included in these and reviewed in Colyer

et al are Participatory Rural Appraisal, Contact Hypothesis, Social Identity theory, and Social Practice theory (Colyer, Helme, & Jones 2005).

Participatory Rural Appraisal comes from the field of community development and provides a range of creative techniques for involving a broad range of people in the learning process using democratic participation (Newell-Jones 2005).

Whilst this approach may be of use in underpinning the development of interprofessional CPD, it does not provide a clear framework for underpinning research and evaluation of IPL.

Contact Hypothesis (Allport 1954) and Social Identity theory (Tajfel & Turner 2001), as outlined above, provide a way of theorising attitude formation and the existence of stereotypes held by health and social care students and professionals about other professional groups. It is suggested that such stereotypical views can be changed, at least in the short term, providing that groups have contact and that certain other facilitative conditions are in place, as outlined in (Dickinson & Carpenter 2005). The facilitative conditions include that the groups should have equal status in the situation, they should work on the same goals, institutional support for the 'contact' should be clear and the environment should encourage co-operation rather than competition. In addition, participants should have positive expectations, the joint work should be successful, and members of the different groups should see each other as typical of that group in order that any changed attitude or stereotypical view can be

generalised to the rest of that professional group. To assist generalisation, there must be opportunities for inter-group and interpersonal contact.

In spite of the suggestion that the facilitative factors are an important part of the success or otherwise of Contact and Social Identity theory, research relating to outcomes has tended initially to concentrate on 'measuring' individual and group change in attitude rather than incorporating contextual features into the analysis. The theory also encourages very little emphasis on how well participants are subsequently willing and able to work interprofessionally, instead making the assumption that reduced negative stereotyping will automatically improve interprofessional practice. Thus, whilst useful to examine individual mindsets, pedagogically, this approach does not provide sufficient detail to investigate the impact of an educational intervention.

Social practice theories, based in part on the work of Lave and Wenger (1991), and Wenger (1998), have much to contribute in terms of acknowledging and understanding the impact of practice on learning. In particular, they have helped to surface the importance of situated learning, of participation through a process ranging from peripheral participation at the outset to established participation for 'old timers', of the subtle influence of learners' and established members' perceptions of practice on the practice itself, and of the impact of practice on identity. Shortcomings with the theories include the lack of analytic attention paid to power relations within communities of practice (see for example, Fuller et al.

(2005) for a critique of Lave and Wengers' approach to understanding learning at work); power relations play an important role in the functioning of public service interprofessional groups, especially in health and social care given the hierarchies in many clinical settings, professional status, the type of evidence permissible and of educational background of the professionals (Page & Meerabeau 2004).

The theories used to date do not appear to fully address the specific context faced by the CETL: IPPS. As outlined, the CETL: IPPS has emerged largely from the success of the NGP and will adopt aspects of the NGP's model of teaching and learning. The evaluation of the NGP uses Contact Theory and Social Identity theory to examine individual change in attitude, identity and stereotyping, taking the individual as the unit of analysis. However, IPL is clearly influenced by context, considering the problem-focused, group-based model of facilitated collaborative learning. (Chaiklin & Lave 1996) offer a way of conceptualising context by suggesting that

'any particular action is socially constituted, given meaning by its location in societally, historically generated systems of activity... Contexts may be seen as the historically constituted concrete relations within and between situations' (p. 18).

Much of IPL involves collaboration in mixed groups of professionals (Callwood 2006; Crow, Smith, & Jones 2005; Newell-Jones 2005; Richardson & Trudeau 2003; Stew 2005), it involves practice-based learning (Callwood 2006; Hall & Weaver 2001; Rolls, Davis, & Coupland 2002), and involves learning towards specific tasks. In the CETL: IPPS interprofessional CPD, cohorts will comprise of participants from a range of professions working together in sessions over a period of five to six months. Each CPD group will formulate the task or issue(s) based on local needs that they wish to address collaboratively with the help of a facilitator. Groups may be formed based on their work in one locality, around one particular functionality, or people at similar organisational levels. Participants will develop action plans in conjunction with their group to implement in their own practice during and following the CPD programme. Learning is therefore contextualised by group membership, mediated by facilitation and strongly influenced by the structural, demographic, social and economic features of the local authority and locality within which they work. Lave (1996) suggests that the question relating to context might best be formulated as 'What are the relationships between local practices that contextualise the ways people act together, both in and across contexts?' (Lave 1996), p. 22. Health and social care professionals have a more established history of working together or at least in parallel. Given the inclusion of education, attention needs to be paid to the 'systems' or 'communities' within which participants usually work to understand what they bring with them and how that may impact on interprofessional learning and practice. An example of this would be the different perspectives

professionals bring to a 'problem' and, indeed, what constitutes a problem. Poor school attendance has high profile as an issue within the local authority education service. The perspective from education may be that parents and children need to become more aware of the value of and the statutory obligation for regular education. The perspective from the child mental health service may be influenced by the fact that (as reported by one of the cohort members) ten percent of children suffer from a diagnosable mental health problem and a further ten percent have a sub-clinical mental health problem. Addressing such an issue clearly engenders different approaches from different viewpoints.

In order to address these elements, the theoretical framework needs to offer a means of exploring and explaining the socio-cultural, economic and demographic context of learning and the role of mediation. It needs to provide a way of exploring issues of differential power and status of participants in those communities of practice in so far as these issues impact upon people's participation and learning. Furthermore, there is a need to address not only people's participation in these contexts, but also their trajectories of participation across different contexts as people cross the boundaries from one community to another. How do people from disparate disciplines come to share ownership for and make sense of new forms of interprofessional learning and activity? This proposed research framework therefore aims to identify if particular pedagogic interventions have a greater or lesser impact on the complex interactions of learning.

The concept of Community of Practice (Wenger 1998) is of use in addressing some of the issues identified. As we take part in and define 'enterprises' together, we interact with each other and with the world. This, Wenger asserts, is learning. Over time, the collective learning results in practices that reflect both the enterprise we are engaged in and the social relations attached to it. A community of practice forms through the sustained pursuit of enterprise over time. The pursuit of enterprise gives structure and meaning to what communities do; negotiating such meaning involves the complementary notions of participation and reification closely interwoven into what Wenger refers to as a duality of meaning. Here, participation describes the *'process of taking part and ...the relations with others that reflect this process'* (p. 55).

Reification is the

'process of giving form to our experience by producing objects that congeal this experience into 'thingness'. In so doing we create points of focus around which the negotiation of meaning becomes organised' (Wenger, 1998, p. 58).

Examples of reification include processes of

'making, designing, representing, naming, encoding and describing...perceiving, interpreting, using, reusing, decoding and recasting...aspects of human experience and practice are congealed into fixed forms and given the status of object' (p. 59).

The theoretical concepts of participation and reification will assist in exploring how (and if) the CPD participants develop an interprofessional community of practice and how they come to negotiate and understand shared meanings. Such a theory of situated learning provides a firm foundation for interprofessional pedagogy and has gained support from many authors, as cited in (Martin 2005) p. 53). Consequently, situated learning offers a sensible focus for research into interprofessional learning. The components of this social theory of learning comprise:

- meaning: learning as meaningful experience
- practice: learning as doing
- community: learning as belonging
- identity: learning as becoming (Wenger 1998) p. 5.

Learning takes place as students shift between learning contexts and take on different roles. Learning, therefore, cannot be conceptualised or researched in isolation within one specific context. Instead, it occurs as people participate in and across different social contexts, as '*personal trajectories of participation*'. Dreier's conceptualisation (1999, 2002) suggests that social contexts involve constantly created and re-created '*constellations*' of people in different positions. Individuals' positions vary as they move from one context to another according to their '*personal action potency*'. This is not simply individual agency, but is also

shaped by the resources and constraints of societal arrangements influencing individuals' potentialities and personal modes of participation. Attention to the resources and constraints of societal arrangements and personal action potency offers a way of addressing issues of differential status, power and control amongst participants in the learning contexts. This is of particular use to researching interprofessional learning as participants hold different types and levels of status and power in services relating to children and families, thereby potentially impacting upon participation and learning. The notion of '*boundary crossing*', of the learning that takes place in the crossing between different contexts or social practice spaces, is of help in examining the individual and collective learning that occurs under those circumstances (Fuller 2006).

Also of relevance is how individuals from disparate disciplines can share ownership and make sense of interprofessional activity. Here, the concept of '*boundary objects*' will be of use. These are characterised by Engeström as neutral 'objects' that sit between the participants from different professional backgrounds and are both mediating tools and foci for the interprofessional activity (Engestrom 2004). In the case of the CETL: IPPS CPD, the group development of issues as a focus for interprofessional learning may be usefully conceptualised as boundary objects.

The conceptualisation of learning as boundary crossing and as personal trajectories of participation may contribute to understanding the contextual

influences on CPD for qualified staff. Their learning will involve shifting from their own professional communities of practice to new, as yet undeveloped, interprofessional communities of practice. However, additional theoretical models will be needed to explore other aspects of the research.

Eraut's work begins from similar assumptions in that learning is influenced by the socially constructed contexts and settings in which it takes place (Eraut 2004), but looks too at individual knowledge. He defines cultural, socially-situated knowledge of a setting (codified and uncoded), and personal knowledge held by individuals on the basis of their specific histories and experiences. His framework considers ways in which prior knowledge is used and expanded upon. Additionally, he takes into account the influence of work structuring and social relations in the workplace on the development of knowledge. As the CPD course participants will clearly be people in the workplace and facing structural change as the Children's Services Directorate takes shape, it may be useful to draw on Eraut's work as the evaluation progresses. At this stage, however, we simply acknowledge awareness of its potential. Aspects of Eraut's work (Eraut 2001) relating to preparation and planning, participation, links between on-the job and off-the job learning, and follow-through will be considered.

The contextual analysis can be taken further than looking at the influential factors. Activity Theory, another branch of socio-cultural theory developed by Engeström and others (Cole 1996;Engestrom 1999;Engestrom 2004;Russell

2004), takes as its unit of analysis the socially-distributed activity system in which individuals and groups are involved. Many of the elements included in the model of activity systems mirror elements discussed in the theoretical underpinning outlined so far. These are the **subject** (individual or group engaged in an activity), the **object** (the focus of the activity, which might be contested or understood differently by different subjects), and the **tools** (anything that mediates the subject's action on the object such as other people, language, mathematical systems – these are culturally specific). Within an IPE context, the subject could be understood as the IPE group or an individual participant on the CPD programme. The object may be conceptualised as the goal of greater interprofessional collaboration, and the tools may be seen as the facilitator, the context specific signifiers of the placement, and the task or issue addressed during the CPD. In addition, the subject is part of a **community**, either his/her professional community, the IPE group, or the community of the local authority; activity systems have a **division of labour** that shapes the way subjects' act; and they have **rules** (can be informal and tacit) which shape interactions. These aspects of activity systems are thought of as relational to each other in triangular formation, with contradictions occurring within and between the nodes. Figure 1 shows these relationships. Different triads of nodes within this (such as subject-community-rules) offer lenses or foci for exploration. It offers a way of addressing the complexity of learning set in its socio-cultural context and may provide a way of gaining new insights into relationships between elements identified. Being able to focus on specific aspects of learning, pedagogic issues can be explored,

for instance the role of the facilitator in learning, or the use of problems as objects or tools for learning.

Figure 1: A complex activity system

Engeström's theory of expansive learning helps to explain how change occurs in an activity system. Here, contradictions that emerge as part of an activity system act as catalysts for change. When groups of individuals begin questioning accepted practice and it '*gradually expands into a collective movement or institution*', analysing, modelling and implementing new ways of practising, then produce new forms of activity (Engestrom 2004). Participants use their situated knowledge in a situation which is itself constantly developing. Potential sources of contradiction within and between nodes might include school leaders trying to balance the demands of the ECM agenda, which for schools in less deprived parts of a local authority might mean a reduction in resources to enable deployment of resources to more deprived areas, with the demands of the standards agenda in which each school has to meet targets for improved results. Such theorising has potential use in exploring and explaining interagency and interprofessional working in the development, implementation and follow-through of interprofessional CPD.

Activity Theory is used by Edwards and Daniels in the Learning in and for Interagency Working Project (Warmington et al. 2004; Warmington et al. 2005) as an intervention model with the aim of promoting expansive learning amongst professionals in children's service multi-agency settings. The methodology draws upon Engeström's Developmental Work Research cycle. However, our intention is to use Activity Theory as a heuristic device to contribute to guiding the research design and steer analysis, rather than as an action research tool. As Blackler (1995) pointed out

Activity systems which were previously segregated are becoming interlinked and, therefore, are growing larger and becoming more complex. Research is needed to document such developments. Detailed ethnographic studies are needed to illuminate the ways in which people improvise, communicate and negotiate within expanded activity systems.
(Blackler 1995) p. 1041.

In addition, Engeström's concept of 'knotworking', in which previously only loosely connected participants and activity systems come together to collaborate for a particular purpose, has the potential to guide analysis. Such knotworking is characterised by the tying, untying and retying threads of activity (Engeström 2004). Engeström suggests these newly forming and dissolving knots would be an important focus for analysis.

The theoretical framework underpinning CETL: IPPS research will therefore be drawn from the concept of Community of Practice, Activity Theory and the work of Dreier (2002; 1999) on trajectories of participation, particularly Personal Action Potency, to offer a means of addressing differential power relations. The theoretical concepts used to guide the content of data collection and analyses are mapped out in Figure 2.

Figure 2: Map of analytic concepts

This then provides the conceptual framework. But how can these analytic concepts be translated into a workable evaluation design capable of addressing the complexity of the underpinning theory in a practicable manner?

CETL: IPPS evaluation

The aim for the CETL: IPPS evaluation is to use the comprehensive framework outlined above for exploring participants' interprofessional practice before, during and after the CPD in terms of changes in conception of the purpose of the activity, in the tools that are available to effect change, in ways of working, such as new forms of reification and participation, new divisions of labour and the formation of new 'knots'. Kirkpatrick's model of evaluation (Kirkpatrick, 1994), adapted to *Outcomes of Interprofessional Education* (Freeth et al, 2002, p. 14) is further adapted to act as a framework for the CPD evaluation design (Table 1).

Table 1 Process and outcomes of interprofessional education

Kirkpatrick's (1994) evaluation framework sets out different levels at which educational inputs might be evaluated and encourages evaluation to consider impacts beyond participant reaction to the input. This adapted framework guides the stages of the CETL: IPPS CPD evaluation, whilst the theoretical underpinning provides guidance for the content of those stages and the analyses of resulting data. Table 2 provides a model illustrating how the analytic concepts map onto the evaluation levels. At this stage, concepts from Eraut's work have not been included in the matrix. We would prefer the flexibility to draw on his ideas if the empirical data show that it would be helpful. In the matrix, the analytic concepts form the columns and the adapted Kirkpatrick levels of evaluation form the rows. The cells in which the analytic concepts and evaluation levels meet offer brief descriptions of the focus for data collection and the substantive areas against which change will be monitored. An indication of whether data will be sought from participants and /or their managers is also included.

The theoretical concepts are drawn from different origins, each with unique contributions for looking at interprofessional learning and practice. Coherence in the framework is sought and the concepts do, we feel, provide a sensible blend of ideas. However, we acknowledge that they are not discrete blocks of thought that 'slot' easily together. Similarly, we acknowledge that such concepts may not

map onto an evaluation framework with the certainty and delineation implied in the model. However, we feel that the mapping exercise and resultant matrix do offer a useful tool to guide theoretically-informed evaluation that will allow exploration of the complexity involved. As analysis progresses, it may also have use in highlighting gaps for future tools to assist in better understanding IPE. The matrix thus provides a useful approach to theoretically-driven, practicable interprofessional pedagogic evaluation which seeks to explore the impact of pedagogic input on practice change in context.

Table 2 Conceptual evaluation matrix for interprofessional pedagogic evaluation

The focus throughout will be on the effectiveness of the pedagogic model in promoting interprofessional learning and practice. It is anticipated that each IPL cohort will constitute a 'case' with the first cohort providing the opportunity to pilot the design. The methodology may then be adapted in light of the pilot experience. Equally, initial findings from early cohorts will inform further development of the CPD in an iterative manner. In this way the CETL: IPPS team responsible for designing and delivering the interprofessional CPD perceive the evaluation as a diagnostic and formative process which will form the basis of their 'self-evaluation' and subsequent modifications to the CPD intervention, as well as the evaluation process itself.

Conclusion

Researching and developing interprofessional curricula are challenging and it is vital to grow the evidence and theoretical base concurrently to secure knowledge regarding the effectiveness of interprofessional education in changing practice. Whilst some research is published and more is being undertaken, so far no generic best practice model for IPE has been developed. By developing an integrated framework for analysing learning beyond intrapersonal development and looking at contextual influences on learning, such gaps may be filled. The aim of the CETL: IPPS evaluation is to provide a model that – over time – may assist in identifying significant factors that contribute to effective (interprofessional) learning. Therefore, the role and impact of pedagogy on practice change is brought to the fore. By combining the theoretical notions that consider community-of-practice processes, individual learning trajectories, changing contexts, and power status, we have developed an adjustable lens with the potential to analyse educational experiences more holistically. Using a modified evaluation framework we also hope to examine such experiences over time. Empirical evidence as the evaluation progresses will serve to ‘test’ the evaluation model, which can then be refined in light of the findings. The resulting model for the theoretically-based evaluation matrix has the potential to provide a means of focusing on the impact of pedagogy on practice change.

References

- Allport, G. W. 1954, *The Nature of Prejudice*. Addison-Wesley., Reading, MA.
- Anning, A., Cullen, J., & Flear, M. 2004, "Research contexts across cultures," in *Early Childhood Education: Society and Culture*, A. Anning, J. Cullen, & M. Flear, eds., Sage Publications, London, pp. 1-15.
- Anning, A. "Knowing who I am and what I know: developing new versions of professional knowledge in integrated service settings", p. 10.
- Blackler, F. 1995, "Knowledge, Knowledge Work and Organizations", *Organization Studies*, vol. 16, no. 6, pp. 1021-1046.
- Callwood, I. J. 2006, *Interprofessional learning among health professionals: Learning to work collaboratively*, Lancaster University, Department of Educational Research.
- Chaiklin, S. & Lave, J. 1996, *Understanding Practice: Perspectives on activity and context* Cambridge University Press, Cambridge.
- Cole, M. 1996, *Cultural Psychology* Harvard University Press, Cambridge.
- Coles, B., Britton, L., & Hicks, L. 2004, *Building better connections: Interagency work and Connexions Service*, Joseph Rowntree Foundation: The Policy Press, Bristol.
- Colyer, H., Helme, M., & Jones, I. 2005, *The Theory-Practice Relationship in Interprofessional Education* Higher Education Academy, London.
- Cooper, H., Braye, S., & Geyer, R. 2004, "Complexity and interprofessional education", *Learning in Health and Social Care*, vol. 3, no. 4, pp. 179-189.
- Cooper, H., Carlisle, C., Gibbs, T., & Watkins, C. 2001, "Developing an evidence base for interdisciplinary learning: a systematic review. [Review] [39 refs]", *Journal of Advanced Nursing*, vol. 35, no. 2, pp. 228-237.
- Crow, J., Smith, L., & Jones, S. 2005, "Using the Patchwork Text as a vehicle for promoting interprofessional health and social care collaboration in higher education", *Learning in Health and Social Care*, vol. 4, no. 3, pp. 117-128.
- Department for Education and Skills 2003, *Every Child Matters*, Department for Education and Skills, London.
- Department for Education and Skills. Common Core of Skills and Knowledge. www.dfes.gov.uk/commoncore/ . 15-5-2007.
Ref Type: Internet Communication

Department of Health 2001a, *Learning from Bristol: the report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984 -1995*, HMSO, London, CM 5207.

Department of Health 2001b, *Working Together - Learning Together : A Framework for Lifelong Learning for the NHS*, Department of Health, London.

Department of Health & Department for Education and Skills 2004, *National service framework for children, young people and maternity services*, The Stationary Office, London, 3779.

Department of Health & Home Department 2003, *The Victoria Climbié Inquiry: Report of an Inquiry by Lord Laming* The Stationery Office, London.

Dickinson, C. & Carpenter, J. 2005, "'Contact is not enough': An inter-group perspective on stereotypes and stereotype change in Interprofessional Education," in *The Theory-Practice Relationship in Interprofessional Education*, M. H. a. I. J. H. Colyer, ed., HEA, London, pp. 23-30.

Dreier, O. 2002, "Learning in Personal Trajectories of Participation".

Dreier, O. 1999, "Personal Trajectories of Participation across Contexts of Social Practice", *Outlines*, vol. 1, pp. 5-32.

Edwards, D. & Mercer, N. 1987, *Common Knowledge: The Development of Understanding in the Classroom* Methuen, London.

Engestrom, Y. M. R. a. P. R. L. 1999, *Perspectives on Activity Theory* Cambridge University Press, Cambridge.

Engestrom, Y. 2004, "The New Generation of Expertise: Seven Theses," in *Workplace Learning in Context*, A. F. a. A. M. H. Rainbird, ed., Routledge, London.

Eraut, M. 2001, "Do continuing professional development models promote one-dimensional learning?", *Medical Education*, vol. 35, pp. 8-11.

Eraut, M. 2004, "Transfer of Knowledge between Education and Workplace Settings," in *Workplace Learning in Context*, A. F. a. A. M. H. Rainbird, ed., Routledge, London, pp. 201-221.

Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. 2002, *A Critical Review of Evaluations of Interprofessional Education, Occasional Paper No. 2*. LTSN - Centre for Health Sciences and Practice, London.

Fuller, A. 2006, "Theories of Learning and Communities of Practice," in *Communities of Practice: Critical Perspectives.*, N. J. a. L. U. J. Hughes, ed., Routledge, London.

Great Britain 2004, *The Children Act* The Stationery Office, London.

Hall, P. & Weaver, L. 2001, "Interdisciplinary education and teamwork: a long and winding road.[see comment]. [Review] [52 refs]", *Medical Education*, vol. 35, no. 9, pp. 867-875.

Humphris, D. & Hean, S. 2004, "Educating the future workforce: Building the evidence about interprofessional learning", *Journal of Health Services Research and Policy*, vol. 9, no. 1, Supp 1, pp. 24-27.

Kirkpatrick, D. L. 1994, *Evaluating Training Programmes: The Four Levels* Berrett-Koehler Publishers, San Francisco.

Kirshner, D. & Whitson, J. A. 1997, *Situated Cognition: Social, Semiotic, and Psychological Perspectives*. Lawrence Erlbaum Associates., New Jersey.

Lave, J. 1996, "The practice of learning," in *Understanding practice: Perspectives on activity and context.*, S. Chaiklin & J. Lave, eds., Cambridge University Press, Cambridge, pp. 3-32.

Lave, J. & Wenger, E. 1991, *Situated learning: Legitimate peripheral participation*. Cambridge University Press., Cambridge.

Martin, J. 2005, "Interprofessional education reframed by social practice theory," in *The Theory-Practice Relationship in Interprofessional Education*, M. H. a. I. J. H.Colyer, ed., Higher Education Academy, London, pp. 49-58.

Mattick, K. & Bligh, J. 2003, "Interprofessional learning involving medical students or doctors. [Review] [10 refs]", *Medical Education*, vol. 37, no. 11, pp. 1008-1011.

Mercer, N. 1995, *The Guided Construction of Knowledge – talk amongst teachers and learners* Multilingual Matters, Clevedon.

Munro, N., Felton, A., & McIntosh, C. 2002, "Is multidisciplinary learning effective among those caring for people with diabetes?", *Diabetic Medicine*, vol. 19, no. 10, pp. 799-803.

Newell-Jones, K. 2005, "Whose reality counts? Lessons from Participatory Rural Appraisal (PRA) for facilitators of Interprofessional Learning (IPL)," in *The Theory-Practice Relationship in Interprofessional Education*, H. M. Colyer, Helme.M, & I. Jones, eds., Higher Education Academy, London, pp. 62-68.

O'Halloran, C., Hean, S., Humphris, D., & MacLoel-Clark, J. 2006, "Developing Common Learning: The New Generation Project undergraduate curriculum model", *Journal of Interprofessional Care*, vol. 20, no. 1, pp. 12-28.

- Page, S. & Meerabeau, L. 2004, "Hierarchies of evidence and hierarchies of education: reflections on a multiprofessional education initiative", *Learning in Health and Social Care*, vol. 3, no. 3, pp. 118-128.
- Reeves, S. 2001, "A systematic review of the effects of interprofessional education on staff involved in the care of adults with mental health problems. [Review] [50 refs]", *Journal of Psychiatric & Mental Health Nursing*, vol. 8, no. 6, pp. 533-542.
- Richardson, K. & Trudeau, K. J. 2003, "A case for problem-based collaborative learning in the nursing classroom", *Nurse Educator*, vol. 28, no. 2, pp. 83-88.
- Rogoff, B. 2003, *The Cultural Nature of Human Development* Oxford University Press, Oxford.
- Rolls, L., Davis, E., & Coupland, K. 2002, "Improving serious mental illness through interprofessional education", *Journal of Psychiatric and Mental Health Nursing*, vol. 9, no. 3, pp. 317-324.
- Russell, D. R. 2004, "Looking beyond the interface: Activity theory and distributed learning," in *Reader in Psychology of Education*, H.Daniels and A.Edwards, ed., Routledge Falmer., London, pp. 309-325.
- Stew, G. 2005, "Learning together in practice: a survey of interprofessional education in clinical settings in South-East England", *Journal of Interprofessional Care*, vol. 19, no. 3, pp. 223-235.
- Tajfel, H. & Turner, J. 2001, "An Integrative Theory of Intergroup Conflict.," in *Intergroup Relations: Essential Readings*, M A Hogg and D Abrams, ed., Psychology Press, Philadelphia, pp. 94-109.
- Vygotsky, L. 1978, *Mind in Society* Harvard University Press, Cambridge MA.
- Vygotsky, L. 1986, *Thought and Language* MIT Press, Cambridge, Massachusetts.
- Warmington, P., Daniels, H., Edwards, A., Brown, S., Leadbetter, J., Martin, D., Middleton, D., Parsons, S., & Popova, A. 2005, "Surfacing contradictions: intervention workshops as change mechanisms in professional learning", in *British Educational Research Association Annual Conference*.
- Warmington, P., Daniels, H., Edwards, A., Leadbetter, J., Martin, D., Brown, S., & Middleton, D. 2004, "Learning in and for interagency working: conceptual tensions in 'joined up' practice", in *Teaching and Learning Research Programme (TRLP) Annual Conference*.
- Wenger, E. 1998, *Communities of Practice: Learning, Meaning, and Identity* Cambridge University Press., Cambridge.

Zwarenstein, M., Reeves, S., Barr, H., Hammick, M., Koppel, I., & Atkins, J. 2000, "Interprofessional education: effects on professional practice and health care outcomes", *The Cochrane Library* no. 1, p. CD002213.

Figure 1: A complex activity system

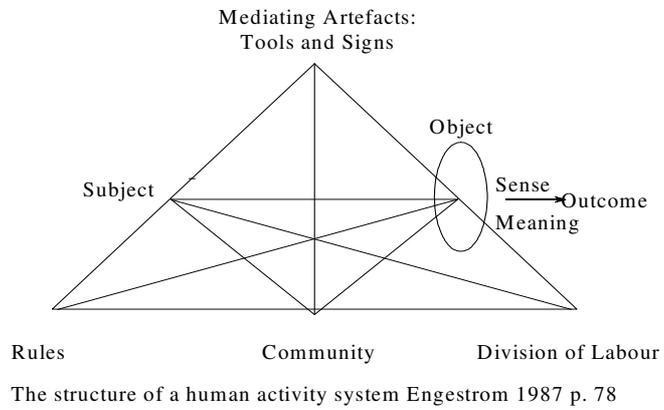


Figure 2: Map of analytic concepts

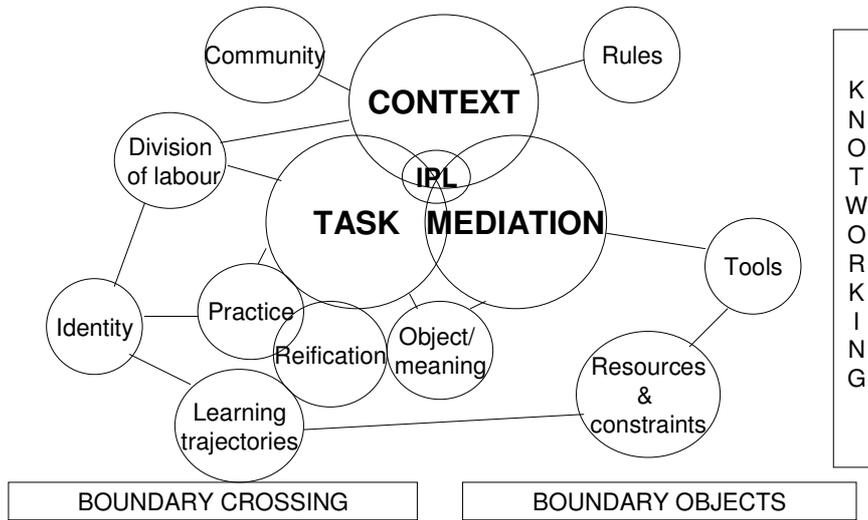


Table 1 Process and outcomes of interprofessional education (adapted from Kirkpatrick, 1994)

Literature review	Pedagogic processes in IPE
Preliminary level	Pre-course data collection
Level 1	Reaction
Level 2a	Learning – attitudes / perceptions
Level 2b	Learning – knowledge / skills
Level 3	Behavioural change
Level 4a	Change in organisational practice
Level 4b	Benefits to patients / clients (managers' and participants' perceptions of this)

Table 2 Conceptual evaluation matrix for interprofessional pedagogic evaluation

<i>Concept</i> <i>Kirkpatrick</i>	Community	Rules	Division of Labour	Tools	Object/Meaning	Practice	Reification	Identity	Learning Trajectories	Resources/ Constraints	Boundary Crossing	Boundary Objects	Knotworking
Prelim Level	Expectation Motivation M; P	Expectation Motivation M; P	Expectation Motivation M; P		Expectation Motivation M; P		Current IP practice M; P			Current IP practice M; P			
Level 1				Reaction to IP learning P	Reaction to IP learning P								
Level 2a			Change in attitudes. Value of IP working P		Change in attitudes. Value of IP working P			Change in attitudes. Value of IP working P	Change in attitudes. Value of IP working P	Most/least useful parts of pedagogy P			
Level 2b				Pedagogy supporting knowl/ skill changes P		Knowl/ skill changes. P			Knowl/ skill changes. Expectation achieved P	Most/least useful parts of pedagogy P		Knowl/ skill changes. Supporting pedagogy P	Knowl/ skill changes. Expectation achieved P
Level 3						Transfer of IPL to practice and setting P					Transfer of IPL to practice and setting P		Transfer of IPL to practice and setting P
Level 4a	Service org & del change. Pedagogic tools. M; P	Service org & del change. Pedagogic tools. M; P	Service org & del change. Pedagogic tools. M; P	Service org & del change. Pedagogic tools. M; P		Service org & del change. Pedagogic tools. M; P				Service org & del change. Pedagogic tools M; P			
Level 4b					Client benefit of IP working M; P	Client benefit of IP working M; P	Client benefit of IP working M; P				Client benefit of IP working M; P		

Key: M – managers' perceptions; **P** – participants' perceptions