What's Occurring? The What, Why, When and How of Research Capacity Building in a Modest Pilot Project with EAL Learners and Science

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ABSTRACT

This paper reports on an ESRC/HEFCW-funded research project which was part of a research capacity building programme initiated through the Welsh Education Research Network (WERN). The research team included a mix of early career and more experienced education researchers from two Welsh universities and undertook an exploratory pilot study on visual elicitation methods for assessing the conceptual understanding of science concepts with pupils for whom English is an Additional Language (EAL).

Affordances for collaborative learning about the conduct of research derived from hands-on team work and co-participation in the research design, development of instruments and fieldwork in a primary school. Sections of the paper report the chronology of the 'learning by doing' which brought the team together as they sought secondary data on EAL pupils, negotiated access through hierarchies of consent, created research tools and organized translations with Polish Learning Support Assistants (LSAs). A learning journey was undertaken which had positive outcomes for all players including the differentially experienced research team of early career reseaercher (ECR), second career researcher (SCRs) and mid-career researchers (MCRs), bilingual Learning Support Assistants (LSAs),

the Ethnic Minority Advisory Service (EMAS) and hosting school. Our collaborative team was heuristic in several ways which built up research capacity.

This paper draws upon a variety of material: field notes, observational records, visual material, analytic memos and researcher diaries to illustrate the approaches used to trial the methods and to highlight what and how we learned by undertaking a pilot study together.

Introduction and context for the research

Policy documents acknowledge that Wales as a 'learning country', needs 'to customise and refine learning experiences tailored to the needs, aspirations and potential of individuals' (NAfW, 2001: 10). Whilst the UK has always housed a multilingual population, the diversity in language and dialect is increasing (McWilliam, 1998; DfES, 2003), yet the potential capacity of the home language in this area has been a neglected area of research (Edwards et al., 2000; Ellis, 2005). With a population of thirty-seven million, Poland contributes 62 per cent of new migrants to Britain (Home Office, 2006). In Wales a population of over 15,000 ethnic minority pupils from over 100 different ethnic minority backgrounds, accounts for over ninety different languages (EALAW, 2003). In the capital city of Cardiff alone, analysis of recent Pupil Level Annual School Census (PLASC) data reveals 104 home languages (EMAS, 2008) and 166 Polish-speaking pupils.

The significance of both educational provision for migrant children and the problem of their typical underachievement have been widely recognized (EU Commission, 2006; Munz, 2007). Little is known about EAL Polish pupils' experiences (Kaczamarek, 2007) or indeed the ways in which they navigate themselves through the curriculum. Substantial English-language demands are placed upon beginner EAL learners within the mainstream classroom, with many such pupils excluded from the communication process due to their inability to 'keep up' with classroom discourse that is solely in a language that they are only just beginning to learn (Ellis, 2005).

Inclusion in the curriculum can be increased by encouraging the use of pupils' home languages, enabling them to tackle cognitively challenging tasks in a way denied to them by the insistence on the use of English (Moore, 1999). This may be especially true in a conceptual subject such as

science, which has a 'highly specialised language' (Monk and Osborne, 2000). The 'talk of science' provides the conceptual tool for 'thinking about science' (Leach and Scott, 2000).

Against this backdrop and presented with an opportunity to engage in some research capacity building with modest funding from the Welsh Education Research Network (WERN), a team of four differently experienced educational researchers from two Cardiff universities came together. The background and context to WERN are examined elsewhere in this edition but its aim was to 'develop educational research capacity in Wales by building collaborative research activity between institutions in order to share skills and experience and in so doing support each other in increasing levels of expertise' (*www.wern.ac.uk*).

The proposed exploratory pilot research set out to build upon the work of the Teaching and Learning Research Programme (TLRP) Welsh extension project Interactive teaching and ICT (ITICT) project (Kennewell et al., 2007) which used Video Stimulated Reflective Dialogue (VSRD) effectively with pupils (Tanner and Jones, 2007). The research design was also devised to extend Ellis' (2005) doctoral research which had used Clicker 4 software to identify strategies that would foster EAL pupils' better engagement in the literacy hour (Ellis, 2005).

Using these approaches with Polish pupils for whom English is an Additional Language (EAL) we sought to examine the efficacy of Video Stimulated Reflective Dialogue (VSRD), the use of concept cartoons, which can 'help to teach English as a second or foreign language' (Keogh and Naylor, 1999: 441) and Clicker 5 software in assessing learners' conceptual understanding of the science topic Forces.

By focusing the pilot study on EAL pupils at Key Stage 2 (KS2) for whom Polish is the home language, we sought to assess pupils' ability to identify 'dimensions of change' and their ability to move from description to explanation, small to 'big', 'personal' to 'shared' (Harlen, 2000: 30). To provide a clear focus, the project concentrated on the topic 'Forces' as this is an element of KS 2 Science which research demonstrates holds many misconceptions for children of this age (Russell, et al., 1998; Hollins and Whitby, 2002).

The preliminary research questions framing the proposal for a pilot study were:

1) Can Video Stimulated Reflective Dialogue (VSRD) be used effectively with pupils whose first language in not English?

2) How does VSRD compare with other, more established, methods of visual elicitation (e.g. Concept Cartoons and Clicker 5)?
3) Does VSRD or other forms of visual elicitation enable EAL pupils to explain scientific concepts?
4) Are there any specific vocabulary issues relating to 'Forces' in the Polish language?

The importance of the study we outlined to the WERN adjudicating assessor panel in our bid for funding was its particular affordances for:

• *Assessing* the efficacy of a new combination of existing methodologies as a stimulus for scientific understanding where English is not the home language.
• *Analysing* children's language choice and associated issues when exploring scientific concepts;
• *Identifying* specific vocabulary issues associated with the home language – for e.g. no specific word for word translations for scientific concepts.

Furthermore, as part of a Wales wide initiative for helping to build up education research capacity the exploratory pilot project was established to be inclusive, not overly ambitious in scale and to have ample experiential learning opportunities for team members relatively new to research. We stated boldly in the methods section:

> *Reflexive evaluation* of methods and chronology of data collection will be undertaken using fieldwork journals and analytic memoranda collected throughout in order to refine and revise the 3 stage approach. (Research Proposal submitted to WERN October 2008 Section B)

This paper reports on what we did and how we did it, specifically addressing how those more experienced researchers were 'mindful' and explicit during the various research processes and stages. The preliminary project findings are reported elsewhere (see Beauchamp et al., 2009) and are not the focus of this reflexive paper which concentrates on the embedded and more explicit activities for enhancing research capacity which were undertaken across the project's short seven month life. A brief chronological account of the stages of the research is provided in the sections which follow.

Preparing for fieldwork and data collection

With a three stage research design already broadly mapped out we had around two months to prepare instruments, learn some use of new technology and negotiate access through the hierarchies of consent to a suitable primary school context. Chart 1 below lists the challenges faced in preparing for the small scale study

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Chart 1 Pre-fieldwork challenges for research team

- Identifying concepts from a Key Stage 2 Scheme of work for *Forces*
- Recording a *Forces* film using children of the research team
- Designing visual material for Clicker 5
- Creating valid concept cartoons as visual material for Clicker 5 software
- Audio recording and 'dubbing' Clicker 5 items in English and Polish languages
- Piloting data tools and sequencing with sample KS2 pupils

Visual methods are increasing in popularity in research with children and young people. In *Talking about pictures: a case for photo elicitation* Harper (2002) makes a strong case for using photos created and tabled by informants or, as we did, photos prepared and linked to key research foci. Both sorts provide an agenda for more naturally occurring talk (Pink, 2006; Rose, 2006) in ethnographic and mixed methods research projects.

Pioneered by Keogh and Naylor (1999), concept cartoons are now an established method of assessment in science education (Naylor and Keogh, 2000; Naylor et al., 2001). Although originally aimed at children aged 9–13, they are now used at all stages of education (Stephenson and Warwick, 2002). They have been used successfully with groups of children in primary school (Chin and Teou, 2009) so were considered a suitable tool for this project. A concept cartoon is a visual representation where characters present carefully worded oppositional viewpoints in speech or 'thought bubbles' focusing on a particular scientific concept. Chin and Teou (2009) suggest the benefits of concept cartoons are that students have to:

> declare which cartoon character they felt was correct, they had a vested interest in defending their viewpoints. In doing this, they also had to challenge opposing ideas put forward by their peers and ask questions of them. Thus, they were more

willing to take on an active role as enquirer. In answering each other's questions and attempting to convince group members of the assertions they made, the students proposed explanations to back up their claims, justified their reasoning using data and evidence, built on their peers' ideas to expand on their thinking, rebutted their peer's claims if they contradicted with their own, and offered alternative viewpoints. (Chin and Teou, 2009: 1329)

All of this was witnessed (bilingually) in the final fieldwork and will be reported in a subsequent paper. In the context of the project outlined in this paper, it is important to note the concept cartoons were presented in English and Polish allowing pupils to choose which language to respond in.

The use of video to stimulate a response in research has appeared under many guises but, as outlined above, we will follow the usage of the ITICT project and others (for example, Moyles et al., 2002; Powell, 2005) and refer to it as Video Stimulated Reflective Dialogue (VSRD). Although more often used with teachers, Tanner and Jones (2007: 333) contend that VSRD also provides a 'focus for collective reflection' for pupils.

The Clicker 5 software allowed us to adapt 'Concept cartoons' and make them 'speak' in English and Polish at the press of a button. It was important to note here that the person clicking would be the pupils not the researchers. In fact, recording their choice of language was an important part of the evidence gathering.

Thus the pilot research set out to use sound recordings, photographs, physical activities and video film excerpts of the pupils engaging in the physical activities, thereby combining for a multi modal approach to data collection (Dicks et al., 2005).

Devising instruments: family members collaborate too!

Having drafted rough story boards for typical Forces activities from junior science schemes of work, we needed children to photograph and film. A pragmatic decision was made. To speed up the production of visual material for the concept cartoons and VSRD tools the children of the research team were used. On a February half term Wednesday afternoon our children were put through their paces and 'starred' in a video film which captured them in various Forces activities for example *pushing and pulling*. Figure 1 depicts them in a still shot we saw fit to use as a concept 'cartoon'. Epithets like 'the learning family', the 'learning team' are quite appropriate

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here and we sought their views in a child friendly manner as co-collabora-tors in our research design. This was a stance informed by the wish to explore participatory child centred approaches (Fraser et al.; 2004; Rudduck et al.; 2003) in the later fieldwork researching *with* rather than researching *on* the pupils at 'St Gregor's' primary school. Being our own children, they did not hold back from telling us which instructions they found more difficult to enact. Generally a good time was had and whilst no remuneration was given, we acknowledged their vital assistance to the research team with the reward of supper treats and cinema visits.

**Figure 1 Video film still used for concept cartoon:
Children pushing against each other.**
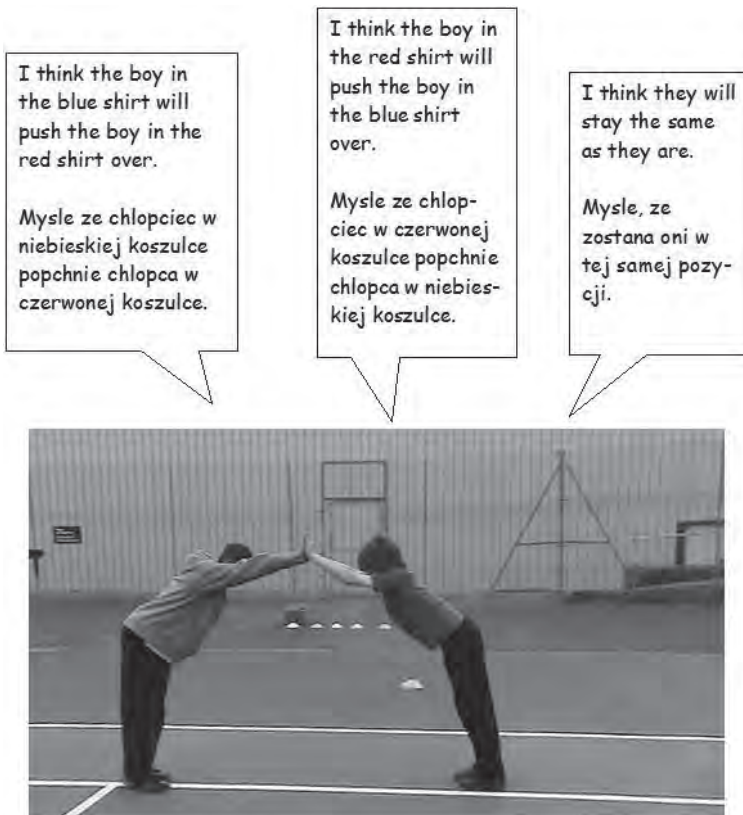
Team visits to St Gregor's Primary School: facilitation, translation and support

Negotiating access to schools and convincing headteachers and/or governors of worthy research is always a nuanced and necessary task for all researchers experienced or otherwise (Delamont, 2002). Three waves of access negotiation over four months used pairs and then finally the full team to clarify exactly the numbers of pupils needed, what space and time was required. Our approach to the director of the Ethnic Minority Achievement Service (EMAS) paid dividends and alerted us to many important facts: how EAL pupils are screened and classified, the ages and distribution of Polish pupils in local primary schools, numbers of Polish-language assistants and most importantly, the name of a school where the headteacher – 'Mr Emmerson' – would be likely to welcome some research attention.

Mr Emmerson toured the initial pair of researchers and then the team around his school, spoke Polish to passing pupils, introduced us to his science co-ordinator and facilitated our visits and tentative requests superbly. In fact as one of us wrote in a memo:

> Mr E. is a researcher's dream. Not only has he identified samples of KS2 pupils to our specification, but if we get our parental consent letters to him via email he'll get them translated and out to parents bilingually!

On our third full team visit he received on a memory stick our information letter to parents and pupil friendly flyer; both were translated and circulated out to families in order for data collection to go ahead in the late spring term. Field-notes captured important physical and social contextual data about St Gregor's.

> The potted plants, pupils' art and craft exhibits make the entrance vestibule welcoming and interesting for anyone required to wait a while. The map of the world has arrows pointing to countries of origin of current pupils. The title proudly boasts: 'We have over 75 pupils (34 of whom have Polish as a first language) from 17countries here at St Gregor's Primary!' . . . The head reiterated the international flavour of his school twice during our visit. He is proud of its diversity. (Fieldnote extracts: Cheryl/Chantelle)

Though the headteacher proudly announced our research to Estyn inspectors and to his local community via the school news letter, our original promise of confidentiality has been kept. Following BERA's (2004) revised ethical guidelines, pseudonyms are used for the school, staff

and pupils who participated in the pilot project throughout all modes of dissemination.

Fieldwork at St Gregor's with EAL Polish pupils:
striving for a participatory approach

We met the sampled children twice, initially for an introductory talk and then about two weeks later on the days of data collection. We were keen to seek their views in a child friendly manner as co-collaborators in our research design. This desire to conduct research *with* rather than research *on* the pupils at St Gregor's was underpinned by our readings of participatory child centred approaches (Fraser et al., 2004; Rudduck et al., 2003). In the translated pupil flyers we created a child friendly text on bright yellow paper with well spaced FAQs, in font *comic sans* size 14 and explained that Polish support staff would be present.

Chart 2 Extracts from Information flyer for Pupils

Thank you for showing an interest and becoming involved in our project about science ! We hope that you will enjoy the activities that we will organise together and we very much welcome and look forward to hearing your thoughts and ideas about them.
We have printed below some questions and answers that you may find helpful. These help to explain a little about the project:

Why do we need pupils to take part? How can you help us?
We need some small groups of pupils to try out some different practical activities for us and later to talk to us about what they think about the activities.

What sort of things will you be asked to do?
As individuals and small groups you will be guided in some practical activities which are to do with Forces- a topic in science. We will then invite you to talk about the activity with us in small discussion groups. During *some* of the activities we will use a video camera or a computer and we will be recording our discussions with each group of pupils.

We really want to know what _you_ think about the different activities and tasks.

We later presented certificates in a large Friday morning 'Whole School Assembly' saying formal thanks to those pupils who had 'joined in and helped us with the important research on science and assessment'. Given that three of the research team were at the time of the fieldwork preparing book chapters on ethical approaches in research on children (Ellis and Beauchamp, in press; Haughton and Beauchamp, in press) we were very reflexive about ethics and particularly keen to reward those children who had supported us as well as including 'Anneta' and 'Erika' the Polish-language assistants for whom we also made certificates to reflect their close involvement in the project. It is worth noting that the active involvement of Anneta and Erika in the design of the materials was also an important factor in the success of the project, not only in ensuring accurate translation but also in making them active co-researchers.

Capturing pupil talk and their sense making of Forces

Observational recording sheets were created to capture both the frequency and length of pupil utterances and language used (Polish or English). Two recording sheets were drafted by two of the team and following discussion about the pragmatics of being able to note quickly, the final version used in the pilot combined best features of both originals with a manageable number of columns to record activity – maximum 8. This was photocopied with two researchers each having a supply of 50 sheets to use during the five separate research settings. These were VSRD; clicker; concept cartoons; outdoor practical activities and group interviews.

This observation tool helped capture pupil's language choice for responses or 'out aloud thinking' in the different settings of the research and also indicated *approximate* length. A column for the Polish assistant 'Anneta' prompting/assisting in Polish or English also supplied data helping us to see the extent of support needed and offered.

These records generated helpful data which used in combination with the audio recordings, the VRSD video record and field notes helped capture each pupil's participation. Furthermore, we also involved the Language Assistants (LAs) who made observational records, which concentrated on language and vocabulary, which they later translated for us. The simple tallies yielded quantitative data and helped us build up a better description of the participation/interaction of each pupil.

As well as the formal observational record sheets with tallies and codings of pupil, teacher and language assistant talk, descriptive fieldnotes were also made. These qualitative data supplemented the rather stark quantitative data captured on the recording sheets and helped to illustrate more contextual features of interaction.

> Anneta (the language support assistant) is sitting adjacent to Piotrus and Greta and her body language and gentle head nodding is encouraging Piotrus to try to give an answer. Her eyes are wide open and she whispers in a smiling positive way 'Dalej Piotrus! Tylko Sprobuj!' ['Go on Peter! Just have a try!'] (Fieldnote extract, Concept cartoons: Jane)

> Gary gathers the children around him ready to instruct and explain. He says clearly scanning faces, 'Listen and watch carefully' and gives a nod to Anneta and his words are swiftly followed by her translation of the instruction

> 'Sluchajcie i patrzcie uwaznie'. She looks very serious and is emphatic in her instruction giving which follows Gary's. (Fieldnote extract, Practical Activities in the school yard: Jane)

The taking and making of observational field notes is not without challenges as anyone doing ethnographic type research knows. Reid et al., (1996) in their paper 'Do you see what I see?' point out to the importance of triangulating between researchers. In hyper-eventful interactions and settings where several participants talk and act (like the classroom or playground) it is useful to have more than two researchers observing or if possible combinations of a video camera and audio recording. We used three observers (including more and less experienced researchers) and one interviewer/facilitator.

Comparing tallies and field-notes was vital in confirming inter-observer reliability and was a confirmatory process for all involved. In addition, it also helped to develop the confidence of less experienced researchers that they were not solely responsible for data collection and, given the close relationship of data collected, that they were not missing important incidents.

The post fieldwork meetings, re-listenings to the audio files and close discussions enabled us to identify matters we wanted advice on from the Polish LSAs. We had noted, albeit in phonetically written field-notes, that the LAs occasionally prompted and praised when the interviewer (Gary) did so but also made interjections which we needed to understand. For example, Chart 3 below shows the typical Polish comments and their English translations:

**Chart 3 Polish language support assistants
occasional interjections**

'Well done! Good Girl/Boy'
 'Bardzo dobrze! Dzielna Dziewczynka/Chlopiec!'

'Listen and watch carefully'
 'Sluchajcie i patrzcie uwaznie' (plural)
'Sluchaj i patrz uwaznie' (singular)

'Have a guess at the answer'
'Zgadnij jaka jest odpowiedz' (singular)
'Zgadnijcie jaka jest odpowiedz' (plural)

'Think for a second before you speak'
'Pomysl chwile zanim odpowiesz' (singular)
'Pomyslcie chwile zanim odpowiecie' (plural)

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*Research capacity building: what other team
activities helped build research knowledge and skill?*

Researcher diaries

Most research methods texts, especially those from a more qualitative paradigm (Delamont 2002; Hammersley and Atkinson, 2007), advocate the keeping of a reflexive researcher's diary to record 'out of the field' thoughts, reflections and even analytic memos to share with others or to revisit later. Incidental reflective research diaries were kept by three of the team during the period of research funding. These semi-private docu-ments were not kept systematically but occasionally in the particularly busy project phases. The diary extracts are testimony to the social practices model of learning to do research. They illustrate how being active in the research process itself can be instrumental in developing new understand-ings about negotiating access, employing methods and interpreting research findings. Three extracts taken from different phases of the research project may illuminate the ways in which questions and queries arise and alert an agenda of learning.

The LA EMAS contact from my PhD days was so helpful and seemed pleased to be able to advise again! She can supply up to date demographic data on EAL

pupils and how they are categorised. We explained our needs re sample of Polish EAL primary pupils at KS2 where possible. MB suggested St Gregor's Primary where the Head is a big supporter of the Polish community. How we secure a sample from KS2 may be compromised if numbers are mainly at KS1. (Diary extract: Cheryl, 16 February 2009)

Using our own kids as unpaid actors for the VSRD filming sequences was useful and enabled us to iron out the best sequences for the Forces activities, the equip-ment needed and helped us estimate the time required for the physical activities. Most importantly it helped us clarify the script of spoken instructions. It was great fun but, was it entirely ethical? Should our patient sons and daughters have been rewarded for their services as assistants to the research project? Must check if there are there are BERA guidelines on this! (Diary extract: Chantelle, 10 March 2009)

Was our recording sheet 'fit for purpose'? I found it hectic concentrating on the child and then deciding if the LSA was prompting or simply translating Gary's question? Must check with Chantelle's obs records. Also we must get Annetta to re-listen to audio recordings to clarify. If we repeated the fieldwork again how would we adapt the sheet or even the division of labour? Would we focus our attentions differently? The LSA's record sheet for spoken Polish may turn up some interesting data on scientific understanding for those who spoke less English! (Diary extract: Jane, 4 June 2009)

Sharing Analytic memos and thinking aloud

Like other researchers working in tight time constraints and certainly all research teams operating within the 2007–9 WERN group bursary initia-tives, we too were time poor. Geography was however on our side with offices at both universities being only 4 miles apart. Nevertheless, face to face meetings were supplemented with e-mail communications and tele-phone calls. Each researcher made up their own set of summary meeting notes and analytic memos were circulated between team members. We felt it important to value the process of 'thinking aloud' and sharing emergent ideas and queries with each other. Whereas opportunities for serendipitous encounters and musings in coffee breaks for the UWIC team members existed, the Cardiff researcher could have felt 'out on a limb' had we not kept our thoughts in circulation and in touch. A frequency tally revealed greater volume of analytic memos sent from Cardiff to UWIC but this was an artefact of the team composition (Jane being an experienced ethnogra-pher) and the geographical distribution of the team. Some typical analytic memos circulated as e-mails illustrate important exchanges during the pre- and actual field-work periods.

Update on Clicker 5 concept cartoons
I have imported the photo stills and speech bubbles into the Clicker programme in English. The translation by the LSAs still needs doing and must be typed into the empty speech bubbles. Then the Polish voice over dubbing of the cartoons needs to be done. I can visit the school and spend some time with Annetta and Erika making the audio files, they can always email me the translations if we don't get that covered. My reading and PhD experience suggests that it is best to have two translators involved to check meanings. Importing the sound files into Clicker is quite a challenge! (Analytic memo: Cheryl, 13 May 2009)

About each Polish pupil n=12
Clearly subsequent analysis will be richer if we know a little more info about each pupil e.g. Some attainment data if possible and/or EMAS code for language competence – siblings, newly arrived, or residing here one year, etc. Perhaps we could elicit some of this on Friday after main data collection activities via informal conversations / interviews with the two LSAs. Just a thumbnail/cameo of each pupil would be helpful. (Analytic memo: Jane, 4 June 2009)

These communications encapsulated vital agendas for our subsequent researcher actions and most memos triggered follow-up telephone calls acting as catalysts for discussion. Individual and collective understandings resulted and necessary tasks were apportioned and completed.

Conclusions: dispositions to learn and willingness to share

Studies of workplace learning (such as Evans et al., 2006) have drawn attention to the 'situated' nature of professional learning. The socio-cultural influences of organizational structures and systems, as well as the inter-personal impact of workplace relationships are fundamental for creating the best conditions for knowledge and skill development. Lave and Wenger's (1991) work on situated learning is relevant here as the real, albeit modest pilot, enabled practical hands on experience of research design and implementation. More intellectual work in analysis and critical reflexivity was made possible in ways not available in formal research training sessions. Collaborative relationships between staff from two universities were free from rivalry and underpinned by enthusiasm and interpersonal trust. Three of the research team are themselves qualified teachers, two also being experienced teacher educators in well-established university Initial Teacher Education departments. The novice researcher, though not formally trained as a schoolteacher has worked with young children and

families both in and outside of the classroom and has experienced teaching and training in a number of youth and inclusion contexts. This is a relevant point, as it is widely acknowledged that teachers' life histories and personal dispositions contribute to their feelings about professional development opportunities (Hodkinson and Hodkinson, 2004). Clearly we were (and are) an enthusiastic mix of individuals, well motivated and keen to use knowledge and skills gained through WERN initiatives in forthcoming publications and in future larger scale research on EAL pupils and science. To this effect we have identified a long agenda of research items, some of which will underpin next stages of refining the research design and pro-gressive focusing informed by the pilot study.

*Learning by doing: reflections on a pilot project as
a building block for developing research capacity*

The story so far gives a rather 'over neat' account and readers may think it somewhat sanitized. We have tried *not* to under report the difficulties which may influence or thwart the professional learning of our team mem-bers, each of whom committed to engage in or become more expert in educational research. Time was our main enemy; the ill health of one col-league threw the idealized gant chart out of kilter somewhat, but we managed to adapt and complete the data collection inside the funding-time boundaries. Just!

Have we built capacity within the team? What is now known? What are the visible outputs? Do our efforts to collaborate on the modest 'Polish EAL pupils' Science Project' uncover any secret or particular ingredients which are worthy of sharing? Readers can decide for themselves, but, without being too self-congratulatory, we feel collectively that each of us learned *something* from the undertaking of this pilot research. The novice team member Chantelle Haughton, has registered for her own doctorate and stated: 'It's when I listen to the research language and vocabularies used in talking about research, that I realise how much I don't know.'

Her honesty had resonance for other team members. It is fair to state that each one of us had such moments – we did not always know what we did not know! Thus learning from Cheryl about EAL and the distribution of ethnic minority pupils across Wales and listening to Chantelle's explana-tions of concept cartoons and their construction cast the more experienced and published researchers (Gary and Jane) in listener-learner roles. This

role was not without challenges as there were times when the 'naive' questions posed in this context provoked an opportunity to reflect deeply on the appropriateness of aspects of the research process. Gary's presentation on the affordances of VSRD cast the other three of us as apprentice users of the tool, whilst Jane's sustained use of vocabularies of social research and bibliographic repertoire from her postgraduate research methods teaching infused team and paired discussions. Much was shared and much gained in both informal 'roll sleeves up' sessions and more formal meetings.

Lessons from the external and formative evaluations of the WERN 2007–9 programmes (Davies, 2008; Gardner, 2008; Davies and Salisbury, 2009), the larger Scottish Applied Educational Research Scheme (AERS) (Baird and Baron, 2008; Taylor et al., 2007) along with the TLRP's research capacity building evidence (Baird et al., 2008; Fowler and Procter, 2008; Fowler et al., 2009) can be learnt about the sorts of activity that actually builds up an individual's capacity to undertake research. This insiders' confessional account (Van Maanen, 1988) is a further contribution to knowledge about mechanisms that work and assist the building up of research capacity, somewhat different for its close-up focus, emic perspective and more detailed and exemplified disclosure.

Notes

'The use of ICT and Video Stimulated Reflective Dialogue (VSRD) in assessing conceptual understanding of science in primary schools children with English as an additional language (EAL)' was the working title of the research capacity building project funded by the Welsh Education Research Network.

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with our filming was an important and much valued stage of the research. May their knowledge of Forces be of use in future lives!

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