

Changing educational practice in the early years through practitioner-led action research: an Adult-Child Interaction Project

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This article reports the development of the first two years of a three-year project that examines the effectiveness of adult–child interactions in the early years, and tracks the development of teachers’ thinking and practice as they engage in practitioner-led action research. The Adult-Child Interaction Project involves practitioners who work with children from six months to six years in one local authority in England as they aim to develop their practice. On the basis of action research cycle, the methods include systematic video observation and stimulated recall; individual, paired and collaborative reflective dialogue; project logs and critical engagement with research. A distinctive feature is continuous engagement with an early years expert as a co-researcher and reflective partner in the processes of change and development. This article focuses on the impact and effectiveness of the project methodology, specifically the strategies that support critical reflection, dialogue and change processes.

Keywords: adult–child interactions; professional development; action research; socio-cultural theory; Early Years Foundation Stage

Introduction

This article reports the development of the first two years of a three-year project that aims to examine the effectiveness of adult–child interactions in the early years, and to track the development of teachers’ thinking and practice as they engage in practitioner-led research. The focus is on identifying the strategies that teachers use to support critical reflection, dialogue and change processes. The project reflects the policy frameworks for the Early Years Foundation Stage (EYFS) (DfES 2007) and Key Stage 1 of the National Curriculum (DfEE 1999) in England. The project is informed by sociocultural theories of effective forms of professional development that involve close collaborations between practitioners and researchers, with shared expertise in early childhood education. International research indicates the value of combining contrasting knowledge bases to contest dominant policy discourses and to conceptualise theory–practice relationships (Edwards and Nuttall 2009; Lenz-Taguchi 2010).

In the first section, the literature review identifies current directions in collaborative educational enquiry, including the benefits and challenges of national

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policy frameworks, and policy-compliant approaches to curriculum implementation. The second section explains the methodology and research design, and the third section reports the emerging findings regarding the collaborative processes that appear to be effective in stimulating change in teachers' theories and practices. The Conclusion section discusses the implications for understanding what and how teachers learn from practitioner-led action research, what pedagogical strategies are effective, and how the outcomes might impact on further change processes.

Changing theories, changing practice

Changing educational practice is known to be notoriously difficult, and research evidence indicates that sustained changes must be underpinned by re-alignments in teachers' knowledge and beliefs (Edwards and Nuttall 2009; Wood 2000). There are ongoing debates about what forms of professional development are effective in supporting and sustaining change (Borko 2005; Goodman and Martens 2007). Research on professional learning focuses on the theories that are articulated and espoused by practitioners in order to illuminate the links between thought and action, and the bi-directional relationship between theory and practice. Contemporary approaches to professional development (across pre- and in-service teachers) include action research (Rust and Meyers 2006); enquiry-based practitioner learning, developmental work research, reflective practice, (Edwards 2009; Edwards and Nuttall 2009; Hall, Murphy, and Soler 2008); interactional ethnography (Jurasaitė-Harbison and Rex 2010); a school-based activities model (Lachance, Benton, and Klein 2007) and critical microanalysis of classroom experiences (Goodman and Martens 2007; Kaasila and Lauriala 2010). What links these diverse approaches is collaborative enquiry-oriented research projects between teachers and teacher educators/researchers, which are situated in practice, and create professional development communities. The projects combine theoretical and research-based ideas with policy developments to inform changes in teachers' knowledge, beliefs and practices. The findings indicate different approaches through which professionals modify their theories, and develop their knowledge in light of specific situated problems and challenges. The 'effectiveness' of what happens as a result of these processes manifests as changes that occur in the conditions for learning, the interactions that support learning and improvements in children's engagement, motivation and learning outcomes. Contextually situated, micro-level indicators of effective practice are privileged over macro-level prescriptions. These approaches offer scope for critical engagement with theory and practice through the processes of action, criticism, reflection, argument, justification and practical reasoning.

However, there are variations in the aims and purposes of enquiry-oriented teacher research. There is a distinction between teacher research being focused narrowly on evaluative and problem-solving purposes, and the processes of enquiry and critical reflection that may sustain the transformation of practice. The former orientation tends to dominate national policy-led programmes that aim towards changing practice in response to new curriculum frameworks. The latter orientation focuses on research that takes place between and within professional communities as a means of bringing about sustainable developments that are not vulnerable to policy changes (Edwards and Nuttall 2009; Lenz-Taguchi 2010). Kaasila and Lauriala (2010, 854) argue that teachers are assumed to change (and learn) through acting and interacting in professionally relevant learning communities. Teaching practices are

thus seen as fertile sites for initial and continuing professional development where teachers learn to teach and innovate in authentic, everyday situations.

These approaches contrast with the limitations of 'top-down' training programmes that aim towards policy implementation, and which are not sustained beyond the life of a particular innovation or initiative (Wood 2004). Government interventions in early childhood education have increased significantly in the UK during the last 20 years, with the intention of improving the quality of provision, and outcomes for children. Whilst effective professional development is seen as integral to these aspirations, the focus is on implementing policy frameworks, including the pedagogical and assessment practices that will enable children to achieve defined learning goals. Although there has been a consistent emphasis on developing children's thinking (Robson and Fumoto 2009), policy frameworks often militate against this aspiration because certain areas of learning, and ways of teaching, are privileged. In addition, curriculum frameworks in England have changed four times between 1996 and 2012, with a lack of consistency between the EYFS and Key Stage 1, which has resulted in a loss of faith in policies to produce sustained improvements in practice. This is because policy-compliant training has tended to change practices without changing knowledge and beliefs, which represents a restricted model of professional development.

As Borko (2005) has argued, research is needed into what and how teachers learn from professional development projects, and what is the impact of change on student outcomes. Those concerned with teacher education, and with the improvement of educational practice, need to explore what forms of professional development impact on practitioner's knowledge, beliefs and actions, rather than surface-level adoption of preferred approaches in policy guidance. This article contributes to these debates by exemplifying a collaborative, practitioner-led action research project that focuses on adult-child interactions in early childhood settings. The focus is on the impact and effectiveness of the project methodology, specifically the strategies that support critical reflection, dialogue and change processes.

Research methodology

Interpretivist action research

The project adopts an interpretivist action research methodology, in which the actions, intentions and meanings of the participants are the focus of enquiry. Action research has a range of purposes: to identify and solve problems, to create knowledge about practice, to develop theory and to bring about change in knowledge and beliefs, and in specific areas of practice (Whitehead and McNiff 2006). Action research projects are generally collaborative, and enable the participants to address issues that are situated in the contexts of their practice, as well as sharing their work within and across groups. Although the outcomes may not be generalisable, action research has developed in early childhood educational enquiry as a means of demonstrating change processes, contesting policy frameworks and dominant discourses, and co-constructing knowledge in professional communities (Edwards and Nuttall 2009; File, Mueller, and Wisneski 2012; Lenz-Taguchi 2010; Rust and Meyers 2006). As Whitehead and McNiff (2006) have argued practitioner action researchers should be seen as capable of making a significant contribution to theory through their 'insider perspectives' but, at the same time, they need to show how they

engage with issues of theory and knowledge. These perspectives informed the design of the Adult-Child Interaction (ACI) Project.

Research methods

The ACI Project involves 14 (13 female and one male) early years practitioners working with children from six months to six years. The project is collaborative and participatory, involving the project Co-ordinator and practitioners as team members. The sampling strategy was purposeful: the practitioners were recommended to the project either by their head teacher/manager or by a member of the local authority advisory team. The criterion for inclusion was a willingness to be open and reflective about practice and to interpret and deconstruct elements of the participants' current thinking and practice in order to bring about change.

The research design involves video recordings, stimulated recall, group interaction and dialogue, research diaries and critical reflection. The benefits of using video recordings and stimulated recall are well-established in educational research, and in professional development programmes. The sharing of videotaped episodes within professional communities is particularly effective for engaging participants in examining group and individual processes (Broadhead and Burt 2011; Thomson 2008). The processes of dialogue, knowledge exchange and sharing practice open up key problems and dilemmas for discussion, critical reflection and evaluation, and confronting theory-practice, as well as policy-practice issues. The effectiveness of these processes is enhanced through research collaborations between teachers and specialists from the educational research community. Borko (2005) has argued that the educational research community should play a leadership role in providing high-quality professional development for all teachers. However, it is argued here that this 'leadership' role should be collaborative, facilitative and democratic.

In the ACI Project the practitioners identify the focus of their enquiry, and the Project Co-ordinator facilitates the modes of enquiry. Each practitioner is paired with a 'buddy' so that two practitioners work together with each age group of children, across two key stages: the EYFS (birth to 5 years) and Key Stage 1 (5–7 years). These age groups include six months to one year; 1–2 years; 2–3 years; 3–4 years; 4–5 years; 5–6 years and 6–7 years. By pairing in this way, the collaborative, reflective discussions between project team members have been age- and stage-specific as well as cross-phase. These discussions have taken place during the project meetings (two per term, approximately every 10 weeks). The provocations for the discussions were drawn from digital video recordings, which were obtained from all participants once every term (three times per year). The recordings captured interactions between each practitioner and the children with whom they work. To date the project has gathered 84 video recordings of between 20 and 45 minutes duration according to the contexts and the age of the children. Each session of filming has been followed by post-observation analysis between the practitioner and the Project Co-ordinator who has been responsible for the filming.

The project has followed a cycle of action research, where practitioners identify a specific focus for enquiry that is related to aspects of their practice that they want to change or develop. They plan the actions and modes of enquiry, and reflect on the impact of those actions. This cycle of self-reflective enquiry (Whitehead and McNiff 2006) was stimulated by the analysis, at individual and group level, of the DVD

evidence. Alongside the filming and subsequent analysis, practitioners engaged with educational theories and research studies that might illuminate, explain or justify the project's emerging findings. Each practitioner kept a research log, describing from their own perspectives, the development of their thinking and practice, and what aspects of the project have resulted in changes to their thinking and/or practice.

Each stage of the project has been cumulative. Discussion has been informed by analysis of the DVD evidence, which in turn has been challenged by theory and by further analysis of transcripts. At this stage, several themes have been confirmed on sufficient occasions to form the basis of the project's initial findings. Other themes, which emerged later in the analysis, are more tentative and will be the subject of more rigorous scrutiny during the final year of the project. Inevitably the post-observation analysis has become more perceptive and refined over time, and practitioners have increasingly highlighted where observations of their own practice coincide with the themes and issues emerging from the group as a whole.

Throughout the project the role of the Co-ordinator has been participative, which has involved leading discussions, prompting reflections and summarising developments in participants' thinking and actions. It also involved reading around the emerging issues and suggesting complementary theories and research studies. By modelling engagement with theories and research, the participants were stimulated to find and recommend further reading to each other. The Co-ordinator participated in the 84 post-observation analysis sessions, recording the themes and ideas for each practitioner, and synthesising those that appear to be common across the participants. These cumulative, iterative analyses continue to inform the main themes that are arising from the project in relation to the processes and outcomes, and which will be reported in subsequent publications.

Three new practitioners have replaced three of the original members who left for various reasons. The responses to the issues and development of thinking from the new project participants have followed a similar pathway to the original participants. The research has been governed by a Steering Group, which has representatives from a local university (specialising in early years education) and from the local authority, two experts in the birth to 3 and the 3–7 age groups, and a representative from the project participants. The role of the Steering Group has been to maintain the focus, to challenge emerging models and theories and to manage finances and dissemination.

Ethical considerations

The project addressed a number of ethical considerations, the first being the relationship between the project participants and the Co-ordinator. In all but two cases the Co-ordinator was previously known to the participants in a role that included monitoring and evaluation. It was critical to establish a more collaborative relationship where both parties jointly constructed and scrutinised the evidence and emerging theories, and where neither was seen as 'the expert' nor to be in judgement over the other. This was achieved at the outset by agreeing that the Co-ordinator would not make any evaluative comments during the post-observation analysis. The evaluation has been controlled by the practitioners, including when to pause and comment on the video recordings. The role of the Co-ordinator has been to keep notes about the issues raised by the individual practitioners, to provide research articles and reports, to maintain a record of issues that were emerging across the group and to provide an analysis of the research processes and outcomes.

The filming of young children poses ethical concerns (Thomson 2008). Prior to the commencement of filming, permission was sought from all parents of children within the settings via a letter which included a detailed explanation of the purposes and proposed outcomes of the project, including the use to which the video recordings would be put. This permission was sought every term that new children joined the project settings. Young children are used to digital methods in the documentation and assessment of their learning, and may also participate in these methods. The Co-ordinator spent time in each setting before the first filming 'using' the camera but without any filming taking place, so that the children were familiar with the camera and to her presence. Most children ignored the camera, but occasionally some children pulled faces or did a dance. Once there was no response to this they became bored and stopped.

When the Co-ordinator was filming, the practitioners alerted her to those few children for whom permission had not been granted. However, because it was often difficult to keep those children away from the camera, some recordings cannot be used outside the project. With regard to using the DVD recordings for purposes outside of the project, each participant practitioner signed a project 'Commitment' which was countersigned by the manager or head teacher of each setting. This included an agreement that the outcomes – transcripts, DVD evidence and logs – could be shared with other practitioners for staff development purposes.

In the following section, the empirical evidence illustrates the processes of change that were stimulated by the different methods, and the ways in which the evidence contributed to a cumulative and iterative process of defining what is meant by 'effective interactions'.

Challenges to practitioner thinking

What is meant by an 'effective' interaction?

The project's initial research question asked 'How do early years practitioners effectively use interaction to extend children's thinking'? In order to be reflective, the participants needed to create shared understanding of the purposes of interaction, and what features of an interaction would make it 'effective'. It was understood from the outset that 'effectiveness' is a value-laden term (Brooker 2011; Cottle 2011) and therefore a working definition was agreed for the purposes of discussion and analysis. Throughout the first two years, and following discussions and observations, two draft models emerged for evaluative purposes. The first is a project definition of 'effective interactions', from the perspective of the child and from the perspective of the adult. The second is a diagram summarising those elements of adults' practices that seemed to impact consistently on that effectiveness (Fisher 2012).

The project discussions proved valuable for clarifying concepts and developing working definitions. When discussing the concept of effectiveness, it was assumed that different definitions would emerge according to the age groups with which the practitioners worked. However, as the definition of 'effective interactions' emerged through its draft stages, it became apparent that the qualitative characteristics attributable to a practitioner working with a six-month-old baby were seen by the project members to be the same as for those working with a six-year-old child. The iterative process of the project strengthened the practitioners' beliefs that the features

agreed upon for their model of 'effective interactions' could be used to evaluate whether an interaction was extending the thinking of children across this age range.

The impact of the DVD evidence was consistently cited as challenging practitioners' thinking and practice:

I really thought that working with babies I would use different strategies than a teacher working with reception children. I thought what made me effective would have a completely different list of things but watching the DVD films last week just showed how wrong I was! I reckon any one of us who is effective with one age group could be effective with another age group – as long as it was with child-initiated learning! (Mary's log: October 2011)

Over time, the scope of the initial research question was extended to include the word 'consolidate'. Practitioners considered that the role of the educator is not just to extend children's thinking and, indeed, to do so consistently could be detrimental to the child. The DVD evidence and post-observation analysis showed that children use a range of strategies, such as consolidating their thinking, rehearsing, revisiting, reassuring themselves that what they have thought or learnt or done holds true when they return to it another time, or in another context. So the iterative research design enabled the participants to broaden their focus on how they use interaction to consolidate *and* extend children's thinking.

Watching my evidence I've realised how much of my time is spent supporting children who are consolidating their thinking. Actually maybe it's too much in my case, and I need to extend their thinking more. But these 2 year olds need to come back to things over and over again and need me to make them feel secure that what they are doing is OK and to help them when it isn't. (Amy's log: May 2011)

Although the age of the children appeared to make little difference to the project's definition of 'effectiveness', a critical distinction was whether the interaction took place in an adult- or child-led context.

Extrapolating the difference between 'effectiveness' in adult-led and child-led situations

The iterative and cumulative design of the project enabled practitioners to confront the discontinuities between their beliefs and practices, and stimulated change processes. For example, practitioners were familiar with an integrated pedagogical model of contextually situated learning:

Contexts that are adult-focused (led): the adult leads the learning in order to achieve specific learning intentions;
Contexts that are adult-initiated: the adult has planned intentions but the activity is set up for independent learning so that children can take the activity further or in another direction;
Contexts that are child-initiated (led): children have free choice over their activity and it remains under their control. (Fisher 2008, 2010)

The balance alters between these different contexts, with the adult-led agenda a more consistent feature in settings with children aged five years and above. The video evidence of the older children showed clear differences in the adult-child

relationships, and in the learning outcomes, when interaction takes place in an adult-led, rather than a child-led context. This factor is recorded in a number of project logs as influencing practitioners' thinking. Many practitioners record their belief that they support children, whether in adult-led or child-led activity, in similar ways. In contrast, the video evidence revealed that by not differentiating adult support (as well as adult intentions) the role of the adult in these different contexts was not necessarily 'fit for purpose':

I had no idea how woolly I am when I'm doing an adult-focused activity. No wonder the children are confused sometimes! I just let them meander all over the place and I thought I was letting their ideas 'flow' but I can just see I confuse them. Sometimes they just need to know what they don't know and it's my job to tell them! I shall try and make my adult-led activities more focused and keep everyone on track more clearly. (Brenda's log: June 2011)

In child-led contexts the adults repeatedly interfere too much, as evidenced by questions and comments that are irrelevant to, and sometimes distract children from, their thinking. Adults behave, more often than not, as they do when they are leading an adult-focused activity: they try to steer the conversation and frequently take it over. Conversely, in adult-led learning, adults are influenced by their beliefs that their pedagogical strategies should 'support' learning and not be overly didactic. Yet the evidence shows that the adult's learning objectives are not reached as readily as they might be because practitioners are overly concerned about 'teaching' (defined as informing, explaining, describing and telling). This is not to suggest that adult-led learning should be didactic, but effective adult-led learning in the project's evidence (i.e. achieving the adult's planned outcomes) seems to involve pedagogical strategies that many practitioners had previously been nervous to adopt. Having identified this feature of 'effective interactions' in their own and others' evidence, many of the practitioners working with the older children said they were more comfortable with supporting child-led learning in less dominant ways and, more significantly, that they could be more direct in their teaching in order to reach the learning objectives of an adult-focused activity.

I think if I can focus my adult-led learning more then I can do shorter sharper sessions – which the children will appreciate – and then feel more comfortable about spending time observing child-led learning without rushing in to take it over. (Debbie's log: May 2011)

Acknowledging the impact of personal beliefs on practice

The project has been influenced by different, nested belief systems. From the beginning, the participants were identified as 'good' practitioners who would be receptive to a reflective model of practice and therefore likely to learn and develop as the project progressed. However, it became clear that stakeholders have different views of 'good' practice. Using the project's emerging definition of 'effective interactions' substantial variations emerged in the capacity of the practitioners' practices to match the criteria. This variation shows, perhaps, that headteachers and managers may see 'good' practice in those practitioners who 'do it the way they want it done' which, in turn, may align with policy compliance.

The Project Co-ordinator has had a significant impact on the design and outcomes of the project. Prior to this role, the Co-ordinator was the Local Authority Adviser for 11 years, and her beliefs and values were well known to all but two of the project participants. Therefore, it can be assumed that the head teachers and managers who wanted their practitioners to participate also held some of those beliefs and values. Although the participants were selected for the quality of their reflective practice, they were also selected subliminally for holding views and beliefs similar to those of the project and the Project Co-ordinator. Whilst the Co-ordinator took care to adopt a non-judgemental role, the discussions and evaluations have been influenced by her personal theories and beliefs.

Finally, the practitioners' observations and analysis of their practice have been influenced by their personal beliefs about early education and, in particular, the role of the adult. The evidence from this project, and other research, indicates that the practitioner's role can shift from leading the learning, to being a co-learner, to following the child's lead in the learning. As such there is a need for the adult to move flexibly from one role to another as the situation demands. However, whilst the participants agreed that flexibility is a characteristic of good practice, there remained tensions and contradictions between what was said in discussion and what was manifest in practice.

The project methodology: impact on practitioners' thinking

The evidence confirmed that changing practitioners' beliefs takes considerable time and effort (Robson 2006; Robson and Fumoto 2009). As the project progressed, it became clear that all parts of the action research process contribute to the whole, but that some strategies have had particular impact on practitioners' thinking, thus validating the methodology and research design.

Being filmed

Being filmed is cited most often as impacting on the practitioners' thinking.

The practitioners were initially self-conscious. Only one had been videoed regularly as part of her performance management and, therefore, the practitioners had to deal with the Co-ordinator and the camera. One practitioner in her log described her nerves the night before as 'similar to going to the dentist'. The outcome of the first recordings was that almost every practitioner talked a great deal, due to their apprehension. In the analysis of this round of filming, practitioners became aware of how they dominated interactions, irrespective of the age of the children. Whilst they attributed this to 'stage-fright' they also commented on the impact on young children of too much adult-led talk:

There wasn't time for them to draw breath let alone think.
They have totally switched off from me.

The project logs and the post-observation interviews showed that practitioners became less concerned about the filming, and more concerned with the quality of their interactions:

I had no idea I kept saying ‘x’, it must be so infuriating for the children. It’s like I want to keep their attention on me rather than being interested in what they want to say. I must stop it! (Eleanor: Post-observation interview October 2009)

A further change in their thinking and confidence was evidenced by the willingness of individual practitioners to show their DVD evidence to the group. Initially they only had to share this with the Co-ordinator. They then selected short vignettes to share and discuss with their ‘buddy’. After about nine months, they agreed to share with the group vignettes that the Co-ordinator selected in order to illuminate some of the emerging issues. This growth in confidence corresponded with their deepening engagement in the research process. At first they were supportive of each other and found kind, positive things to say about the vignettes. By the middle of the second year, however, the group became more confident and sufficiently trusting to make more evaluative comments about their own and each other’s evidence. They became increasingly interested in the findings of their observations and analysis, and this exceeded their fear of others passing negative judgements about their practice:

I know now that we all screw up at some stage and that actually we learn more from that than if we get it right... or pretend we get it right. I really value what the others think now, and actually, whatever they say I tend to have thought it myself already so they are just affirming my views. (Georgina: Post-observation interview February 2011)

The processes of viewing the videotaped episodes and engaging in critical reflection (individually, in pairs and across the group) have been influential in changing the practitioners’ thinking and practice. In five settings, the impact of watching the DVD material has resulted in managers and headteachers purchasing a camcorder and using it for professional development activities.

Writing logs

The purpose of the individual logs was to document each participant’s journey, alongside the Project Co-ordinator documenting the project as a whole. Practitioners were asked to record anything of significance that impacted on their development in the research processes. The logs have been a critical part of the reflective process, requiring the practitioners to record their perceptions rather than relying on those of others. Completing the logs has enabled them (in some cases it has required them) to re-view their evidence and to juxtapose the developing model of ‘effective practice’ against their own practice. This constant review and analysis of recorded practice has given depth and rigour to the practitioners’ reflections because it offered the opportunity for recall that memory alone cannot afford.

Observation and analysis

The practitioners’ skills of observation and analysis have developed with their confidence in being filmed. The first post-observation interviews were dominated by ‘how I look or sound’ rather than ‘what I said’. This quickly moved to more reflective evaluations of practice, beginning with heightened self-awareness:

I didn't realise I talked so much.
 I hadn't realised I stood up to talk to the children so much.
 I just don't pause for breath do I?

Over time, the analysis began to mirror the emerging themes of the project, with similar issues recurring, for example the difference between an interaction with a 'key' child, and with a child whom the practitioner did not know well; the difference between an interaction in child- and adult-led contexts; the amount of time children spent answering questions as opposed to thinking deeply. As practitioners' analyses became more self-critical, they identified examples of where their practice aligned with the project's emerging definition of effective interactions:

I showed I respected her ideas because I went and got some additional resources to keep the play going.
 I made myself really relax into that conversation. I wasn't busy trying to think of something clever to say next I really *listened*.
 I think that interaction was far more meaningful for the child than the ones I used to have. I think it's because I'm not rushing to fill the silence but letting them say all what they want to say before joining in.

These refined analytical processes were also informed by engagement with research evidence.

Engagement with research

As the project developed, the Co-ordinator identified research articles and books which might illuminate the emergent thinking of the participants. Subsequently they found and shared their own material. The literature review has been enhanced by two of the project participants who are studying for degrees and have taken the project's theme for their dissertations.

The findings from research have been influential in challenging and developing the participants' thinking. For example, they engaged with the concept of 'sustained shared thinking', which emerged as a key finding from the Effective Provision of Preschool Education (EPPE) study (Sylva et al. 2004), and informed practice guidance for the EYFS (DfES 2007). Sustained shared thinking is defined as 'an effective pedagogic interaction where two or more individuals "work together" in an intellectual way to solve a problem, clarify a concept, evaluate activities or extend a narrative' (DfES 2004, 37). This definition informed the early analysis of the DVD evidence, and was helpful in considering *why* we interact with young children. Subsequent iterations of sustained shared thinking (Siraj-Blatchford 2007; Siraj-Blatchford and Lanni 2008) also challenged the participants' beliefs about the importance of knowing children well, that effective interactions are frequently with someone (i.e. one to one) and not everyone, and the association between sustained shared thinking and questioning. This last issue has been particularly provoking, because the project's findings show that, in many cases, questioning interrupts rather than extends thinking. Participants began to consider what other strategies might be more effective with young children, such as commenting and making statements. Discussions around this theme led to the seminal text of Dillon (1990) on the practice of questioning, which suggests that alternatives to questioning enhance communication and, as the project findings concur, often lead to longer and more complex contributions from children. Thus the emphasis on children's

thinking in curriculum frameworks needs to be clarified to acknowledge that practitioners can use a range of strategies which may change according to the context, and the age and abilities of the children.

A second influential area of research has been around dialogic inquiry, and the ways in which pedagogical interactions shape the 'guided construction of knowledge' (Alexander 2004; Mercer 2008; Wells 2009). These studies have challenged the 'overwhelmingly monologic' discourse in educational settings, leading the project participants to review not only *how* they interact with children, but also the balance of those interactions, and whether there is genuine reciprocity in adult-child exchanges. The logs and project discussions show that practitioners have become more sensitive to the extent of their own contributions in interactions (who holds the balance of 'talking power'), and more aware of when to instigate conversation and when to be responsive to children's conversational overtures. This led to critical discussion about the power of silence, for example giving children time to think, and giving practitioners time to observe and reflect.

These reflections led to further refinements of a central aspect of the project's enquiry, specifically *when* to interact with a child to support and extend their thinking. The work of Bruner was influential, particularly the notion that 'conversations occur in just those situations where there is relatively *little* educational challenge' (Bruner 1980, 63). This corroborated some early project findings that children talk most when they are most relaxed, which occurs when they are engaged either in menial tasks such as washing hands or doing up coats, or in physical activities such as cutting, pasting, pouring sand. In these spaces, children's conversation turns to a range of other topics. However, when children are deeply engaged and their thinking is focused on their activity, such as creating a story with small world equipment or testing out new theories with cars going down a ramp, they are reluctant to have a conversation and often ignore or are irritated (or bemused) by adult intervention. This finding led to critical discussions about whether sustained shared thinking requires sustained shared talking, and what other ways there might be to support and extend children's thinking without verbal input. To illuminate this issue further, the group considered the work of Ferre Laevers (1998) whose Leuven Scale for Involvement in Young Children was used to analyse when interactions had been effective or not, and whether there was evidence that timing had been a contributory factor.

Practice

The analyses from the first two years of the project show that practitioners' thinking and reflection have changed more rapidly than practice. There have been constant shifts in their thinking and a sharpening of their capacity to reflect on their own and others' practice. However, these changes are not always manifest in the DVD evidence. In discussion, practitioners have reflected on their observations and the implications for practice:

I can see how differently I interact with my Key children to those I don't know as well. It shows how important it is to know all the children in the nursery as well as I can. I'm going to make sure I take that back to S. (manager)

In post-observation interviews practitioners have been increasingly evaluative of their practice and what needs to be changed:

I knew I talked a lot but hadn't realised how much it stopped children from thinking. B. hasn't had time to look at those tubes before I'm putting something else in his hand. I really will try to watch more closely to ensure the children have finished with their train of thought before I introduce something new.

Despite these moments of self-realisation, there are a number of occasions where what is recorded by a practitioner in her/his log, or what is recorded by the Co-ordinator during a post-observation interview or at project meetings, does not match what is seen in practice. One practitioner strongly articulated her belief in play as being purposeful and beneficial for the older children in her Year 1 (5–6-year olds) class, but in practice frequently hijacked children's activities by redirecting their conversations towards some external goal or target that suited her agenda. Another practitioner working with 2–3-year olds espoused 'following their interests' but, in practice, frequently took these over so that the children sat whilst she made the model or told the story, removing their initiative.

For all of the practitioners, the developments have shown an interesting pattern that is often characteristic of the cycle of collaborative action research. At first, the project participants displayed *unconscious* competence and incompetence. The DVD evidence became a mirror to their practice, and enabled them to realise what they already did, or did not do, that they had simply not known, or seen, before. This brought to a conscious level of awareness practice that was previously habitual and unexamined. In the first round of DVD evidence (Term 1) practitioners talk a great deal, but this was followed by a period of *conscious* competence and incompetence. Practitioners became aware of how they were interacting with children, and whether or not those interactions were effective. Because their awareness was heightened and their actions became more conscious, the participants were able to analyse their practice against the emerging criteria for 'effective interactions'. This stage of conscious competence and incompetence also had an impact on the filming. The second set of evidence (Term 2) shows several occasions where practitioners open their mouths to speak or move towards the child to 'help' and then change their minds and close their mouths or withdraw their hands (*self-conscious* competence perhaps). By the third stage of filming (Term 3), some of the changes had become so embedded that they reverted to more unconscious practice, whilst other, newer issues began to emerge, and became the 'conscious' elements of practice and the focus for further analysis.

This was repeated for the three newer members of the project, who went through the same iterative cycle – unconscious awareness; conscious awareness; self-conscious awareness; conscious awareness; unconscious awareness. The difference for these practitioners, particularly the member joining in Term 6, was the level of discussion that was taking place amongst the other practitioners. Although change processes were repeating a familiar pattern, change was taking place more quickly because of the level of consciousness of the other participants and the discussions into which the new members were drawn.

Conclusions

The project reveals the impact and benefits of the different elements of the action research cycle, and the interactions between them. Nevertheless, whilst the project participants are engaged with theory and research and are involved in critical reflection on their practice, the research evidence confirms that changing educators'

beliefs remains challenging, particularly for those whose beliefs and practices are less open to change. The evidence also confirms the impact of these beliefs on practice as the practitioners interact with their children. Practitioners often modify new knowledge to fit with their existing beliefs, which may limit the impact and sustainability of professional development. Whilst professional uncertainty can lead to professional growth, sustained change is more likely to occur where practitioners are encouraged to make explicit their implicitly held beliefs, and to open these to critical reflection in ways that enable them to co-construct new knowledge that will underpin changes in beliefs and practices. Moreover, within complex educational contexts, practitioners need to examine their everyday realities in order to exert more control, especially over changes that are required by 'top-down' policy drivers. This project shows that change is most likely when practitioners are confronted by their own and others' practice, and when what they say (the theories and beliefs they espouse) is challenged by their actions in the context of their practice. In common with other studies (Edwards 2009; Robson and Fumoto 2009) changes have come about as practitioners have become more confident, critical and articulate about why they adopt particular pedagogical strategies and what helps to make them more effective in their interactions with children. The construct of 'effectiveness' being developed in this project is more nuanced and situated than the broad-scale constructs used in effectiveness studies and which, as Brooker (2011) argues, are culturally and contextually limited. The action research model facilitated gradual and incremental change processes, with subtle transitions between the different phases and components.

The limitations of the ACI Project are its scale, contextual specificity and subjectivity. The emerging definition of effectiveness, against which practice is being evaluated, would not meet with universal agreement within different communities, or with policy-led research. An evaluation of the project, therefore, would not only be concerned with whether it was 'effective' but whether the definition of 'effectiveness' is valid, against which the project's 'effectiveness' is judged. In spite of these limitations, action research has considerable benefits, if projects are well-designed and look inwards to practice as well as outwards to research. Whilst engaging with research has been an effective strategy for provoking dialogue and change, the practitioners needed to develop their own understandings. This included engaging with concepts such as sustained shared thinking, and developing more nuanced pedagogical strategies that align with children of different ages, and in different contexts. These processes demonstrate that practitioners need to engage critically with research, especially where the findings from government-funded projects, such as EPPE (Sylva et al. 2004), have direct impact on policy and practice.

The project illustrates that educational reform processes are not in themselves sufficient to provoke sustained changes in practice: there is consistent evidence that practitioners need to be convinced that they can address the problems and challenges that are situated in their practice (Edwards and Nuttall 2009). Projects that focus on specific contextual factors can challenge and extend teachers' professional knowledge, and can provide case studies for wider dissemination, for example through professional development work with other groups of practitioners. The processes of professional development, and particularly changing theories, beliefs and practices, is complex and demanding of time, commitment and expertise. However, the potential benefits include effective and sustainable changes that are generated through collaborative processes.

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