How can adult interactions through questioning be used to enable a deeper level of critical thinking and impact communication?

Orchard Primary School, EYFS

Abstract

The purpose of this study was to explore the impact of adult interactions and questioning on children's critical thinking and communication skills. Observations of adult-child interactions were conducted in the Autumn Term and again in the Summer Term, following a dedicated period of staff training in the Spring Term.

Findings revealed an increase in the number of open-ended questions, *'I wonder'* style questions and adult modelling. The impacts of these changes are explored further through three different case studies. The research findings highlight three guiding principles to support adult-child interactions and adult questioning. Adults need to consider the type of questions used, the way in which they are posed and their role in the learning process as a thinking and learning companion.

Introduction

The research focused on the impact of adult questioning on children's critical thinking and communication skills. The investigation was conducted at a three-form entry primary school situated in the London Borough of Hackney. The school is multi-lingual with a diverse mix of cultures and ethnicities. Typically, children at Orchard Primary School enter both Nursery and Reception below expected starting points in the Prime Area of Communication and Language. The number of pupils with identified speech and language need is above the national average.

A specific area of focus across the school is to 'further develop high quality oracy skills to support enquiry, critical thinking and social communication' (Orchard School Self Evaluation 2018/19). This focus is echoed in the Early Years setting where the Prime Area of Communication and Language is considered a vital building block, laying the foundation for children's successes in all other areas of learning. The 'Characteristics of Effective Learning' also underpin the curriculum. 'Creating and Thinking Critically' provides children with crucial learning skills, supporting them to have their own ideas, make links and choose ways to do things. The rationale for this action research was therefore pertinent to the Early Years setting, as well as the school as a whole.

Learning walks and observations noted key strengths in the environment with a range of stimulating learning opportunities; however, adult questioning was often raised as an area for development. Research shows that this is a common theme. Fisher (2016) asks 'Why, when in the early years we espouse child-initiated learning and independent enquiry, do practitioners use questioning strategies that frequently take control of learning away from the child and place it back in the hands of the adult?' She continues to explain that frequently questions 'dismiss, side-track, muddle or interrupt children's thinking'.

The research was designed to explore the extent to which adult interactions and questioning could impact upon the complex and interlinked skills needed for children to communicate and verbalise their thinking. For the purpose of this research we used the 'Development Matters' statements and the 'Creating and Thinking Critically' strand of the 'Characteristics of Effective Learning' as an assessment tool to measure the impact of adult interactions.

Research Process

The project was coordinated by the Phase Leader and supported by five classroom teachers and five members of support staff.

During the Autumn Term short observations of adult-child interactions were carried out across Nursery and Reception. These observations focused on five children across

each of the five classes, including those with identified communication and language needs. A large sample was chosen in order to gain a broad insight. Observations concentrated on the adult's questions and comments, the type of question used and the child's responses. Observations were carried out to gain a baseline, identify need and offer a comparator for the end of the study.

The information finding process gave a clear picture of identified need. In order to ensure maximum and long term impact, adult interactions and questioning became a weekly agenda item for phase meetings. Support staff training, delivered by the Phase Leader and Speech and Language Therapist, focused on quality interactions and use of questions to support language development. The training schedule was carefully planned to ensure that the theme of adult interactions was revisited regularly to maintain its importance.

All practitioners were also supplied with a question stem lanyard (as seen below). This provided a useful prompt and scaffold for adults and ensured that effective interactions were kept as a top priority with a visual reminder.

Commenting	Pondering	Imagining
E.g. 'My hands are getting colder in the water.' 'You're putting the dolly to bed because she's tired.'	I wonder if…? I wonder why…? I wonder whether…?	What might it be like to…? I can imagine… Perhaps… Let's pretend we…
Thinking Aloud	**Reflecting Back**	**Choices and Decisions**
I'm going to try… I remember when I tried…	It was a good idea to…. I think you've chosen the best____because… I like your idea …	Would you like ___ or__?
Explaining/ Informing	**Posing Problems**	**Connecting**
E.g. 'You have to wear your coat because it's cold outside' 'If you hold the scissors like this it will be easier'	I wonder if there is a way to… I wonder what would happen if… I'm sure there must be a way to…	Do you remember how we…? Do you remember when…?

(Fisher, 2016)

In order to gather findings and measure impact, observations were carried out again during the Summer Term. These observations focused on the same core themes as the information gathering stage. They enabled a broad picture of practice to be gleaned from which individual case studies were drawn.

Findings

During the initial information gathering stage it was identified that 83% of the questions posed by practitioners were closed questions rather than open questions. Closed questions 'have only one answer. The answer is often short, or 'Yes' or 'No', only requiring the recall of information' (Fisher, 2016). Some categorised examples of adult interactions and children's responses observed in Autumn Term are identified below.

A series of **closed questions**, with no **thinking time** which resulted in **no response** from the child.	**Rhetorical questions** which resulted in short or yes and no answers.	A series of **closed questions** which resulted in **short or yes and no answers.**
Adult: "What colour is your truck? Adult: "How big is it?" Adult: "How many wheels does your truck have?" *(The child continued to draw without looking up or responding.)*	Adult: "Who did Jack see at the top of the beanstalk?" Child: "A giant." Adult: "Was the giant friendly?" Child: "No."	Adult: "What are you making?" Child: "Pizza." Adult: "And what is on your pizza?" Child: "Eyes." Adult: "You put eyes on your pizza. Is it going to be yummy?" Child: "Yes."

These interactions demonstrate that the adult is keen to converse with the child; however, a two-way dialogue is not established. The adult relies on closed questions as a means of assessing the child's knowledge and understanding. The child is not encouraged to reason, explain, evaluate or problem solve. Therefore, there is little or no impact upon the children's communication and thinking skills. An effective exchange has not been established meaning there is also a lack of evidence to support effective assessment.

These exchanges also demonstrated a lack of modelling or 'sustained shared thinking' (REPEY, 2002). The adult takes the role of questioner rather than thinking companion and does not, therefore, model language structures, vocabulary or thinking in context. Roberts (2010) terms this 'companionable learning' and explains that this type of exchange not only assists the child to interact and understand the processes of learning but also supports children's wellbeing and self-esteem.

After focused and continued professional development, there was a significant shift in the types of questions being posed by practitioners in the Summer Term. Three main shifts in practice were observed:

1. Observations reflected a 44% increase in the number of open questions posed. Open-ended questions ensure children have 'the opportunity to apply what they know and to analyse and evaluate what they are thinking in different situations' (Fisher, 2016) The use of open questions, for example: *"How can we stick it together so it doesn't fall about?"*, *"How do you know that 5 is an odd number?"*, *"Why do you think that didn't work?"* challenged the children to make connections in their prior learning and verbalise their thinking.

2. Observations noted adults use of '*I wonder*' style questions. For example, "*I wonder how we could make the tower even taller?"*, *" I wonder what else we could use?"*, *"I wonder what will happen?"* These types of questions effectively model the processes involved in thinking and provide an unthreatening conversation starter. '"I wonder'… opens up their thinking rather than closing it down'. (Fisher, 2016).

3. Observations noted adults often took the role of 'thinking companion' working alongside the child. Moments of quiet reflection were observed with practitioners commenting upon what they were doing in order to inspire, motivate or support the child. For example, "*I think I am going to try putting it here to see what happens.*", "*I think I am going to give my Hulk big scary eyes."*

The impact of these changes upon children's critical thinking and communication skills are exemplified in three different case studies below.

Case Study 1

The example below reflects an episode between an adult and Reception child working at below the expected level in Communication and Language in the Construction Area. The adult uses a range of questioning styles as demonstrated in the brackets alongside.

Adult: "How are you going to build a boat?" **(open-ended question)**
(The child doesn't respond)
Adult: "I think I am going to start with the bottom of my boat." (**modelling/ thinking aloud)**
"What shape is your boat going to be?"
Child: "Cuboid"
Adult: "Why do you think a cuboid would be a good shape?" **(open-ended question to assess)**
Child: "Because of the powers, the powers are here."
Adult: "Wow! Powers…I wonder what the powers are going to be?" **(pondering)**
Child: "The powers mean it can't break."
Adult: "Look my boat is really long to help it to go through the water." **(explaining/ informing**
Child: "Yes, mine is too and mine can transform."
Adult: "Wow, how does it transform?" **(imagining)**
Child: "It changes from a boat to a car because I like cars and I know how to drive a real one."

This exchange demonstrates that the adult has tuned into the child's thinking and learning through effective questioning and a warm attentiveness. The practitioner has allowed moments of reflection and uses these times to continue to model thinking ensuring that the child feels at ease as 'interactions flow when both practitioner and child are relaxed' (Fisher, 2016). Rather than replying with 'yes' and 'no' the child feels comfortable and is provided opportunities to explore vocabulary, for example 'cuboid', 'powers' and 'transform' and communicate in extended sentences. The adult listens attentively to the child's response regarding why they have chosen a particular shape and effectively uses this to inform her subsequent modelling and commentary.

This effective interaction has provided an opportunity for the child to develop and evidence key skills in communication as seen in the Development Matters Statements below.

Speaking (40-60m)	
Extends vocabulary, especially by grouping and naming, exploring the meaning and sounds of new words.	√
Uses language to imagine and recreate roles and experiences in play situations.	
Links statements and sticks to a main theme or intention.	√
Uses talk to organise, sequence and clarify thinking, ideas, feelings and events.	√
Introduces a storyline or narrative into their play	

Case Study 2

This example reflects an exchange between a Nursery age child with English as an additional language who is working well below the expected level in Communication and Language.

Adult: "Which one are you drawing?"
(The child points to the word mat.)
Adult: "Oh, that's a strawberry. I am going to draw a strawberry too. The shape is like this". (*the adult models drawing a strawberry shape, the child watches, selects a red pencil and copies on his piece of paper*)
Adult: "Oh and it's got a spiky bit at the top. Spiky, green and spiky."
Child: "Spiky."
Adult: "Let's do the leaves together." (*Again, the child watches and copies the adult)*
Adult: "Good job, well done, you're doing long, spiky leaves."

As research states young children learning a new language will go through a 'silent period' when they are not yet confident to speak. (Lowry, 2011). The practitioner effectively supports the child to enter into an adult-child interaction without pressurising them to speak. Comparing this exchange with the observation consisting of a series of closed questions, which resulted in no response from the child, exemplifies the importance of ensuring children are not overwhelmed with questions which confuse and alienate. It demonstrates the importance of the adult's active participation in the same activity to model skills and language in context. The practitioner uses commentary rather than questioning and is considerate and responsive; reacting to the child's non-verbal actions supporting them to feel accepted and understood. This in turn will support the child to build their confidence with the aim that non-verbal exchanges increasingly leading to verbal ones.

Case Study 3

This exchange involves a teacher and a Reception child working at the expected level. Before the exchange, the child was following his own line of enquiry watching repeatedly as he let the same car go down a ramp. The teacher, observing this, joined in.

This exchange exemplifies the statement that "planting an idea is far more effective than demanding an answer." (Fisher, 2016). The use of challenging open-ended questions and waiting time encourages the child to reason and explain their thinking. The learning momentum is maintained as the child is involved in something they are fascinated in; the teacher has become a companion in their learning rather than an intruder, interrupting play with questions. It is clear that this exchange has enabled a deep level of critical thinking as demonstrated in the following table:

Adult: "I wonder how you could make the car go even faster?" **(posing problems)** Child: "We could make it go up high." Adult: "Move this (the ramp) up high? Why do you think that will make it go faster?" *(The child does not respond. Together, they move the ramp higher using a wooden block. The child shows great excitement as the car moves down the ramp.)* Teacher: "Wow! That went really fast." **(commenting)** Child: "It went really far too." Teacher: "Why did it go so far?" **(open-ended question)** Child: *(He thinks for a while)* "Because the higher the ramp goes the further the car goes." *(The child experiments with holding the ramp flat.)* *Teacher:* "Oh it is stuck; I wonder how can we make it go along?" **(pondering)** Child: "I know, a fan!" (*The child leans down and blows at the car.*)

Characteristics of Effective Learning Creating and Thinking Critically	
Having their own ideas	
Thinking of ideas	√
Finding ways to solve problems	√
Finding new ways to do things	√
Making links	
Making links and noticing patterns in their experience	√
Making predictions	√
Testing their ideas	√
Developing ideas of grouping, sequence, cause and effect	√
Choosing ways to do things	
Planning, making decisions about how to approach a task, solve a problem and reach a goal	√
Checking how well their activities are going	√
Changing strategy as needed	√
Reviewing how well their approach worked	√

Impact and Conclusion

This research highlighted three guiding principles which enable effective adult interactions to promote a deeper level of critical thinking and impact communication skills.

Adults need to use a range of questions. Open-ended and '*I wonder'* questions provide the opportunity for children to make links in their own learning and encourage children to verbalise their thinking. They provide the opportunity for children to use extended sentences, the word 'because' and new vocabulary in context. Closed questions also have a role to play as they often provide a route into a conversation when an open question can appear too large and daunting. Adults need to ensure children are not overwhelmed with a series of questions. Children, especially those new to English, do not respond well into being pressurised to speak. Relentless questioning alienates children with the result that they become withdrawn in the conversation. A more effective strategy is for adults to pose questions, provide waiting time and when necessary provide commentary to model thinking.

Adults need to take on a role in the child's learning journey through active participation in the same activity. 'Sustained shared thinking' raises children's self-esteem and enthusiasm for learning. The adult is viewed as an interested companion rather than an intruder who interrupts their learning with questioning. Both the child and adult feel at ease which enables a more effective exchange.

This research highlighted the importance of ensuring an effective and well scheduled system of continued professional development for all staff. It has raised further questions with regard to the best ways to nurture and maintain an ethos where pedagogical discussions are encouraged and all practitioners feel confident to reflect on their current practice and empowered to make changes.

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