

TITLE PAGE

Manuscript Title:

Any Questions? Young children questioning in their early childhood education settings

Corresponding Author: Jane Murray

E-mail: jane.murray@northampton.ac.uk

Affiliation:

Centre for Education and Research
Faculty of Health, Education and Society
University of Northampton
University Drive
Northampton
NN1 5PH
UK

Orcid ID: 0000-0001-7000-0901

Twitter: @DrJaneMurray

PURE_ACCEPTED_VERSION

Any Questions?

Young children questioning in their early childhood education settings

Jane Murray¹

¹*Centre for Education and Research, University of Northampton, UK*

ABSTRACT

Young children's questions may offer powerful leverage for knowledge acquisition and deep level learning, yet often go unrecognised and undervalued in early childhood education (ECE) settings. When young children's questions are not heard or respected, they are denied their UNCRC Article 12 right to express their views freely and have 'due weight' accorded to them. A pilot case study framed by critical pedagogy and young children's rights perspectives was conducted in the Midlands region of England to investigate the nature and extent of young children's questioning in ECE settings and its relationship with knowledge acquisition and learning. Early childhood students recorded questions young children (n=9) (2.2-4.5 years) asked in ECE settings. Four categories of young children's questions emerged, two oriented to knowledge acquisition and learning. Evidence also revealed effects of performativity impeding knowledge acquisition and learning by both adults and young children in ECE settings. Further study is indicated.

Key Words:

Early Childhood Education, Young Children Are Researchers, Young Children's Questions, Young Children's Rights, Children's Agency

Introduction

This article explores young children's questions in their early childhood education (ECE) settings as leverage to express their views in matters affecting them. Findings are presented from a pilot case study conducted in the Midlands region of England for *Young Children's Questions* (YCQ), a new phase for the *Young Children Are Researchers* (YCAR) project (Murray, 2017a; 2020). The YCQ pilot study investigated the nature and extent of young children's questioning in ECE settings, how it may lead to knowledge acquisition and learning, and how learning from the pilot might inform development of a larger study focused on young children questioning.

Associations between research, learning, and the democratic production of knowledge are central tenets of YCAR (Murray, 2017a) and its new YCQ phase. Early in YCAR, participant educational researchers (n=29) identified 39 research behaviours then ranked them in order of importance for high quality research (Delbecq and VendenVen, 1971). To date, YCAR

outputs have addressed the ten highest ranking research behaviours: finding solutions, conceptualisation, basing decisions on evidence and seven categories of exploration (Murray, 2012; 2013; 2016; 2017a; 2017b). ‘Questioning’ was ranked next in importance for high quality research, providing the rationale for the YCQ study.

The central argument of this article draws from the pilot findings, and is framed by critical pedagogy (Freire, 1972; Giroux, 2020) and the children’s rights agenda (Office for the High Commissioner of Human Rights (OHCHR), 1989). When adults recognise and respond to young children’s questions, they afford their right to Part 1 of Article 12, from the United Nations Convention on the Rights of the Child (UNCRC):

‘State Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the voice of the child being given due weight in accordance with the age and maturity of the child’ (OHCHR, 1989).

Conversely, aligning early education with externally imposed imperatives may limit opportunities for children to use questioning to pursue their curiosity to learn and realise their ‘right to express...views freely in all matters affecting’ them (OHCHR, 1989).

The article opens by reviewing extant literature concerning questioning *per se*, children’s questioning and adults’ responses to it, and children’s right to express their views through questioning. The study design is then introduced, findings are presented and critiqued, then the final section evaluates how findings respond to the research questions

What is questioning?

Questioning is used when seeking information and is defined as an ‘expression of a problematic situation existing in the mind of the questioner’ (Tomasello, 2003; Fahey, 1942: 339). Children start using oral questioning as part of expressing their views at around two years, though young children’s formulation of verbal questions depends on their environments and trialing different question structures (Tomasello, 2003; Legare, Mills, Souza, Plummer and Yasskin, 2013).

Questioning has long been regarded a ‘fundamental human disposition’ and an important educational device (Bruner, 1966; Gordon, 2012: 53). Alongside ‘perception, memory and the testimony of others’ it is an aspect of inquiry that contributes to knowledge acquisition (Sato, 2016:329). Different question types have different purposes (Dillon, 1982). Closed

questions predominate in classrooms (Alexander, 2020; Kohn, 1999; Siraj-Blatchford and Manni, 2008). They may assess learners' knowledge or narrow learning to a single focus (Eason, Goldberg, Young, Geist and Cutting, 2012). Less common in educational settings are teachers' open questions, yet these are more likely than closed questions to encourage learners' higher order mental activity in contexts such as 'authentic' learning and 'possibility thinking' (Alexander, 2020; Bruner, 1966; Craft, 2000:5). Learners' questions may be driven by 'epistemic curiosity': the 'motive to seek, obtain and make use of new knowledge' (Lauriola et al., 2015:202).

In education literature, the topic of questioning as a pedagogic tool has been concerned principally with adults posing questions to children, not children questioning (Dillon, 1983; Morgan and Saxton 1994; Wragg and Brown, 2001). De Jesus, Almeida, Teixeira-Dias and Watts (2007) note that in school, children have few opportunities to ask questions and actively avoid asking questions. Teachers tend to adopt oral or written modes to frame their own questions in classrooms (Whitton, 2015; Wing 1991). Even in pedagogic spaces where more equal relationships are promoted, questioning tends to rely on words (Alexander, 2020; Siraj-Blatchford, 2002). However, questioning is a 'fundamental act of human agency' (Causey, 2015:24) and young children use multiple diverse communication modes, many of which are non-verbal (Malaguzzi, 1998; Gallas, 1994; Bae 2010). If adults do not recognise and value the many questioning modes young children may adopt, young children are denied agency and their right to question as an expression of their views (OHCHR, 1989: 12/1). Hardman (1973: 95) observes that adults cannot understand children's thoughts and actions if they interpret them 'in adult terms'.

Children's questioning

Much literature concerning children's questions comes from the field of psychology. Davis (1932) draws on several early psychological studies to establish that questions account for 11%-22% of oral language among children aged 2-8 years. Sully (1896) recognised that young children's 'thirst for fact' presents in their questions, and interest in children's questioning for epistemic purposes has endured (Cifone, 2013; Engel, 2011; Isaacs, 1944). Young children's questioning is driven by natural curiosity: the innate need to 'explain the unexpected... resolve uncertainty and understand the unknown', which inspires exploration (Berlyne, 1966; Bruner, 1966; Engel, 2011: 626-7).

Psychologists have established that children's questioning promotes cognitive development (Chouinard, Harris and Maratsos, 2007; Frazier, Gelman and Wellman, 2009). Frazier et al. (2009) found that children aged 2-5 years develop cognitively by using explanatory questions to seek causal information. Berlyne and Frommer (1966:5) categorise children's questions as factual, explanatory, dichotomous and interrogative, while Chouinard et al. (2007: 17) identify two types: information seeking (for fact and explanation) and non-information seeking (for attention, clarification, requests for action, permission, and play). Ronfard, Zambrana, Hermansen and Kelemen (2018: 101) propose four stages in children's questioning: 'initiation, formulation, expression, and response evaluation and follow-up'.

Relatively 'little is known about encouraging students to ask questions' (Komatsubara, Shiomi, Kanda and Ishiguro, 2018). However, the role of social contexts for children's questioning seems important (Piaget, 1926: 30; Engel, 2011; Wells, 1999), with comments, reactions and responses from others promoting children's questioning (Nelson and O'Neill, 2005; Stivers, Sidnell and Bergen, 2018). Culture also appears to affect children's questioning. Gauvain, Munroe and Beebe (2013) found that children aged 3-5 years in non-Western cultures were less likely than their Western peers to ask explanation-seeking questions that promote cognitive development. Similarly, Tizard and Hughes (1984) found that girls aged 5 years were less likely to ask adults questions in school than at home.

Furthermore, there is some consensus that educational cultures characterised by authenticity promote children's questioning in ways that reify their learning (Alexander, 2020; Wells, 1999). Hedges and Cooper (2016) have built on Wells' work (1999) to posit that ECE contexts that accommodate young children's interests encourage them to ask 'real questions' that facilitate meaningful ways to learn. Equally, Fler (2020:9) notes that young children aged 4-6 years ask 'philosophical questions of fairness' in contexts where they are engaged and interested. Moreover, young children use questioning to establish how they are positioned in relation to others and their environment (Komatsu, 2010). When compared with other subjects, presentations of children's questions are reported relatively widely in science education (Baram-Tsabari, Sethi, Bry and Yarden, 2006; Garlick and Laugksch, 2008; Ireland, 2017; Jirout, 2020). Indeed, Sak (2020: 59) identified 'science and nature' as a principle theme in pre-school children's questions, though he found that only a quarter of teachers' answers to those questions were likely to support children's learning. In the field of education there are publications that advocate for teachers building curriculum from

children's questions, but they do not form the dominant discourse (Gallas, 1995; Helm and Katz, 2016; Nicholson, 1971).

Komatsubara et al. (2018) suggest that 'asking questions is fundamental for self-motivated learning', which is considered more effective than extrinsically motivated learning (Ryan and Deci, 2000). However, in England, all registered early childhood settings for children aged 0-5 years in England must work to the *Statutory Framework for the Early Years Foundation Stage* (EYFS) (Department for Education, 2017). Whilst the EYFS requires settings to provide opportunities for children to explore, it also includes the expectation that all children attain a prescribed and homogeneous set of early learning goals. Children's achievement of the goals by the end of EYFS forms part of the national regulator's judgement of individual settings' quality (Ofsted, 2019b). Equally, whereas the goals include the statutory requirement that children must 'answer "how" and "why" questions about their experiences' they do not feature children asking questions.

Those working with children aged 0-8 years in England are expected to 'advocate for young children's rights and participation' and 'critically apply high-level academic knowledge of pedagogy and research evidence' (Early Childhood Studies Degree Network, 2018:13). They are also required to co-construct learning with young children (Department for Education, 2013) and 'promote equality of opportunity...democracy...and mutual respect' (National College for Teaching and Learning, 2013:5). Yet more than half a century after Bruner (1966) observed that children's curiosity is often suppressed in formal education settings, recognising and responding to children's questioning is still absent from policy requirements for early childhood teachers in England.

Children's right to question as critical pedagogy

Although young children may not verbalise their questions (Tomasello, 2003; Komatsubara et al., 2018), 'even babies...are capable of expressing views' and do so using many different modalities (Lansdown, 2005:4). Since curiosity is a basic human desire (Bruner, 1966; Engel, 2015), their views may include questioning in various forms, including '...play, body language, facial expressions, and drawing and painting' (UN CRC/C/GC/12, 2009; Chouinard et al., 2007).


Compared with psychological studies about children's questions in educational settings (e.g. Frazier, Gelman and Wellman, 2009; Engel, 2011) there is a paucity of educational research in this area. This suggests that children's questions are not a priority for education (OHCHR,

1989; Olsson, 2013). Indeed, within the formal education system, children's interests, open ended thinking and opportunities to express their views in matters affecting them tend to be subordinated to dominant adult narratives of control, performativity and 'testology' (Ball, 2003; Malaguzzi, 2016:331; Moss, 2016). Data-led imperatives imposed on education cleave to the global economic agenda, affecting even the youngest children, for example in respect of their readiness for school (OECD, 2020; United Nations, 2015:4.2).

In England, features of the 'banking' model dominate education (Freire, 1972). The focus on data charged performativity has resulted in a formal education system characterised by limiting academic standards, narrow curriculum and teaching to tests that measure and compare 'progress' of even the youngest children (Bradbury, 2019; Ofsted, 2019a). Biesta (2009: 36) observes that 'we seem to have lost sight of questions about values, purpose and the goodness of education'. Reliance on big data in education accords the data 'knowledge (and) power, shaping what and how questions can be asked and answered, how answers are deployed, and who can ask them' (Kitchin and Lauriault, 2014: 4–5).

Pressured by the drive for, and by, data oriented to extrinsically fixed imperatives (Bradbury, 2019), teachers are denied opportunities to engage with children's questions that emerge from their intrinsic, authentic interests. Children's questions in education tend to present in rather niche democratic spaces, including pedagogy of listening (Malaguzzi, 2016), the project approach (Helm and Katz, 2016; Kilpatrick, 1918), 'planning in the moment' (Ephgrave, 2018), or theory of loose parts (Nicholson, 1971). Such spaces are accessed by relatively few children.

Such democratic spaces embody critical pedagogy, a theoretical perspective that gives:

 *'...attention to the ways in which knowledge, power, desire and experience are produced under specific basic conditions of learning and illuminates the role that pedagogy plays as part of a struggle over assigned meanings, modes of expression, and directions of desire'* (Giroux, 2020: 4).

Giroux (2020: 3) highlights the attention critical pedagogy gives to democracy, social agency and situated contexts, and its rejection of techno-rational pedagogy 'as merely a skill, technique or disinterested method'. These concerns are foundational to YCQ. Questioning is a form of expression and children's voices include questioning in various modes from birth (UN CRC/C/GC/12, 2009; Engel, 2015; Lansdown, 2005). Therefore, aligning ECE policy and provision with extrinsically imposed big data imperatives is likely to deny children

‘...the right to express (their) views freely in all matters affecting’ them (OHCHR, 1989). Freire (1972:69), attributed as the founder of critical pedagogy, asserts that dialogue is not possible when actors ‘...deny others the right to speak their word’ (p. 69). Critical pedagogues reject the model requiring the omniscient teacher to transmit knowledge to the student who knows nothing (Freire, 1972) and position children as ‘passive receivers and reproducers... awaiting receipt of adult knowledge and enrichment’ (Dahlberg, Moss and Pence, 1999:50). Instead they theorise an alternative model that affords teachers and students opportunities to assert ‘a sense of their rights and responsibilities’ in situated contexts (Giroux, 2020: 176). Critical pedagogy assumes children to be agentic, competent participants ‘in the creation of themselves’ (Dahlberg and Lenz Taguchi, 1994:2; McNair and Powell, 2020). YCQ is a practical *and* philosophical endeavour that adheres to the principles of critical pedagogy (Freire, 1972).

The YCQ pilot study research design

The YCQ pilot study was conducted in summer 2018 over four weeks of a student placement in early childhood settings. The placements give early childhood students opportunities to complement their academic degree studies with experiential learning, gain work experience and build evidence towards Early Childhood Graduate Practitioner Competencies (ECSDN, 2018) and Teachers’ Standards (DfE, 2013). The study design is outlined below.

Aim and research questions

The study aim was to investigate the nature and extent of young children’s questioning in ECE settings, how that may lead to knowledge acquisition and learning, and how this study might inform the development of a larger study about young children questioning. Four research questions guided the pilot study.

- RQ1/ Do young children ask questions in their settings to acquire knowledge and learn?
- RQ2/ What questions do young children ask in their settings to acquire knowledge and learn?
- RQ3/ What are different ways that young children ask questions in early childhood settings?
- RQ4/ How can the YCQ pilot inform a larger YCQ study?

Selected methodology and methods

Instrumental case study (ICS) was selected as a qualitative methodology that affords exploration and understanding of a specific issue through engagement in ‘detailed in-depth data collection’ (Creswell, 2013:97-8). In this context, ICS facilitated insights into the issue of young children’s questioning as an expression of their views in ECE settings.

42 early childhood students were invited to collect data to inform these insights in the form of (i) observations of children questioning (ii) collection of children’s artifacts as tools for their questions, and (iii) brief, explanatory interview conversations with children. The planned observations were narrative and snapshot. Narrative observations are detailed reports of events, while snapshot observations are brief, often spontaneous notes of what is witnessed (Murray, 2019). All data collection was planned to occur naturalistically during everyday activities in settings, recorded using writing, photographs, audio or video footage as appropriate to each situation, then uploaded to a secure online space for analysis.

Co-Researchers, participants and ethics

Emphasis on situated contexts that critical pedagogy affords influenced an early decision to recruit early childhood students as Co-Researchers (Co-Rs) during assessed placements in ECE settings for children aged 0-7 years. The selected university cohort of level 4 students (n=42) had previously studied an assessed level 4 child observation module and had observed young children during at least one assessed placement. Many also had level 3 child observation qualifications, and several were early childhood practitioners alongside studying, so observed children daily in settings. The levels referred to here form part of the European Qualification Framework (Official Journal of the European Union, 2017).

All 42 students were invited to collect data with six children in each placement setting, yielding a sampling frame of 252 child participants aged 0-7 years. The study was guided by institutional and national ethics codes and procedures (British Educational Research Association, 2018; University of Northampton, 2014). In line with these requirements, child participants were recruited as follows: students received information and agreed to act as Co-Rs, setting leaders’ and primary carers received information and consented to children’s participation, then children received information and assented to participate (Appendix 1).

Ahead of their invitation to join the pilot study, all students in the cohort attended a face-to-face information session, supported by additional materials posted on the University’s virtual learning environment (VLE). The session included an introduction to the study, step-by-step

guidance and ethical considerations. VLE materials included the session PowerPoint presentation, children’s interview conversation schedule, a data record sheet to contextualise uploaded data (Figure 1), plus information letters and consent forms. Co-Rs were also provided with a script featuring a bank of statements and questions to support them to secure children’s assent ethically (Appendix 1).

The questioning modes (Figure 1) are synthesised from literature signifying young children’s preverbal communication and gestures in questioning, (Chouinard, 2007), gaze in interactions (Filipi, 2009), touch as an exploratory device (Arterberry and Bornstein, 2015), and verbal questioning (Sak, 2020).

Figure 1: Data Record Sheet

Young Children's Questions				
Researcher's Form for Uploading Data				
Researcher's name:				
Type of setting (tick one):	Primary School	Private Nursery	Maintained Nursery	Other
Child's pseudonym:				
Child's age:yearsmonths			
Child's gender (tick one):	Girl	Boy	Not appropriate to say	
Where did the observation take place? (tick one):	Indoors		Outdoors	
What happened just before the observation? (one sentence)				
What question/s was asked?				
How was the question asked? (Tick one):	Verbal	Action	Touch	Gaze Other
Describe how the question was asked (one sentence)				
Any other information?				

Distinctions between students’ professional and Co-R roles were discussed explicitly; engagement in YCQ offered students opportunities to build new research skills and enhance their curricula vitae. At the start of placements, time was allocated for students to become habituated and achieve insider status in settings before beginning research data collection (Griffiths, 1998).

Analysis Strategy

Co-Rs conducted deductive analysis *in vivo* by categorising the mode of questioning each child adopted (Figure 1), according to the framework based on extant literature (Arterberry and Bornstein, 2015; Chouinard, 2007; Filipi, 2009; Sak, 2020). I then applied inductive thematic analysis to other aspects to allow codes and themes to emerge by clustering data

based on related characteristics, then interpreting these to elicit meanings (Boyzatis, 1998). Extracts from the analysis process are provided in Figures 2-6. I am an experienced researcher who worked as a teacher and teacher educator in early childhood for many years. I also shared and discussed the data with an early childhood practitioner experienced in research to secure trustworthiness of analysis and interpretation. Finally, I compared findings from the present study with extant research.

Figure 2: Extract from inductive data analysis 1 - Drawing themes from the data

KEY THEMES (INDUCTIVE)	
Excerpts from Co-R's record sheets	Key themes
A1i: Indoors. Before the question, the child was clearing up and helping to put the chairs away. <u>'Is it just there?'</u>	Checking, to conform
A2i: Indoors. Child was playing with his toys. <u>'Miss Allie, what is it you have there?'</u> Co-R's reflection: He was intrigued with what I was holding – medicine syrup in a plastic bag, He asked the question while trying to grab the plastic bag.	Curiosity/ Information seeking
A1ii: Indoors. Child was standing on the chair looking out of the window. <u>'Bye bye, are you going on the slide?'</u>	Positioning self in relation to World and others
A3i: Outdoors. Going inside getting ready for lunch. <u>'I want coat off please.'</u> Co-R's reflection: Child was trying to ask me to take her coat off.	Seeking help

Figure 3: Extract from inductive data analysis 2 - Tabulating data in themes

KEY THEMES (INDUCTIVE)			
Checking, to conform	Curiosity/ Information seeking	Positioning self in relation to World and others	Seeking help
A1i: Indoors. Before the question, the child was clearing up and helping to put the chairs away. <u>'Is it just there?'</u>	A2i: Indoors. Child was playing with his toys. <u>'Miss Allie, what is it you have there?'</u> Research Assistant's reflection: He was intrigued with what I was holding – medicine syrup in a plastic bag, He asked the question while trying to grab the plastic bag.	A1ii: Indoors. Child was standing on the chair looking out of the window. <u>'Bye bye, are you going on the slide?'</u>	A3i: Outdoors. Going inside getting ready for lunch. <u>'I want coat off please.'</u> Research Assistant's reflection: Child was trying to ask me to take her coat off.
Etc...			

Figure 4: Extract from inductive data analysis 3 - Cross referencing themed data to age

KEY THEMES (INDUCTIVE), CROSS REFERENCED TO AGE			
Checking, to conform	Curiosity/ Information seeking	Positioning self in relation to World and others	Seeking help
A5i: Indoors. Child was having lunch. 'Can I go and play now?' <i>Research Assistant's reflection: Child had a worried face when asking the question because she was so eager to go and play.</i> 2.10 yrs	A2ii: Indoors. Having lunch and having a discussion about nappies. 'Why does Annie poo in the toilet?' <i>Research Assistant's reflection: Child was shocked that Annie uses the toilet because he still uses nappies. He asked it in a shocked and upsetting way.</i> 2.10 yrs	A6i: Indoors. Child was in the role play corner and asked her peer: 'Can you put some salt in my dinner?' 2.6 yrs	A3ii: Outdoors. Child was playing outside. 'Up, up please.' <i>Research Assistant's reflection: Child was trying to ask me to get her up the climbing frame.</i> 2.2 yrs
Etc....			
Mean age: 2.11 years	Mean age: 3.3 years	Mean age: 3.8 years	Mean age: 3.1 years

Figure 5: Extract from inductive data analysis 4 - Cross referencing themed data to gender

KEY THEMES (INDUCTIVE), CROSS REFERENCED TO GENDER			
Checking, to conform	Curiosity/ Information seeking	Positioning self in relation to World and others	Seeking help
A1i: Indoors. Before the question, the child was clearing up and helping to put the chairs away. 'Is it just there?' (Girl)	A5ii: Outdoors. Child was playing on the climbing frame. 'Miss Allie, Miss Allie, why you not got coat on?' (Girl)	B1ii: 'I had cake at Mummy's party. Do you like cake?' (Boy)	B1iii: 'I am Batman and Batman needs his coat zipped up' (Boy)
Etc...			
Gender: Girl 100%	Gender: Girl 57% / Boy 43%	Gender: Girl 67% / Boy 33%	Gender: Girl 50% / Boy 50%

Figure 6: Extract from inductive data analysis 5 - Data sorted into questioning modes

QUESTION PRESENTATION TYPES			
Verbal (n=19)	Action (n=4)	Touch (n=1)	Gaze (n=2)
B1ii: 'Do you like cake?'	A3i: 'I want coat off please.'	A3ii: 'Up, up please.'	A1ii: 'Bye bye, are you going on the slide?'
Etc...			

YQC pilot study findings

2/42 Co-Rs collected research data, by conducting 19 observations of 9 participant children (75%) aged 2.2-4.5 years in 2/42 (5%) settings, amounting to 9/252 (4%) of the sampling frame. Six girls and three boys participated. The settings were a small, private village day nursery and a large maintained town day nursery. Practitioners', children's and Co-Rs' ethnicities were not recorded; nor were children's home languages.

Despite the small number of child participants in the pilot study, some indications emerged, both in respect of this early study *per se*, and what may be carried forward to inform a future study about young children's questions. Indications include key themes, modes of questioning, and specific variables concerning children's ages and gender.

Only some of the designated data collection methods were used by Co-Rs. All observations submitted were snapshot, none narrative; a few artefacts children used in their questioning were indicated in the data but no interview conversations with children were included. Co-Rs included brief critical reflections with 9/19 (47%) of their observations; these reflections supported the thematic inductive analysis process which elicited four key themes.

- Curiosity / information seeking (Figure 7)
- Positioning self in relation to world and others (Figure 8)
- Checking to confirm and/or conform (Figure 9)
- Seeking help (Figure 10)

Findings focused on children's curiosity and information seeking questions

Findings presented in Figure 7 indicate that children asked questions when seeking information to satisfy their curiosity, including epistemic curiosity (Lauriola et al., 2015:202).

Figure 7. Children's questions - Curiosity / Information seeking

PURE ACCEPTED

Theme	Child	Age: Y/M	Gender	Inside	Outside	CONTEXT / Question / Co-Researcher's Brief Critical Reflection (BCR)	Verbal	Action	Touch	Gaze
Curiosity / Information seeking	BILLY	2.10	Boy	√		BILLY WAS PLAYING WITH HIS TOYS. 'Miss Emily, what is it you have there?' BCR: He was intrigued with what I was holding – medicine syrup in a plastic bag, He asked the question while trying to grab the plastic bag.	√	√		√
	BILLY	2.10	Boy	√		BILLY WAS HAVING LUNCH AND HAVING A DISCUSSION ABOUT NAPPIES. 'Why does Amy poo in the toilet?' BCR: Billy was shocked that Amy uses the toilet because he still uses nappies. He asked it in a shocked and upsetting (sic) way.	√			
	DELLA	3.9	Girl	√		DELLA WAS PLAYING IN THE SANDPIT. 'What's your name?' BCR: She asked in a happy mood. She forgot my name as I do not usually work with her age group. She wasn't too confident in remembering my <u>name</u> so she asked for reassurance.	√			
	ELSPETH	2.10	Girl		√	ELSPETH WAS PLAYING ON THE CLIMBING FRAME. 'Miss Abi, Miss Abi, why you not got coat on?' BCR: Elspeth asked as if she was <u>surprised</u> I didn't have my coat. She had a shocked look on her face. I replied that I wasn't cold.	√		√	
	BRUCE	3.2	Boy		No information	BRUCE 'What you doing?'	√			
	CHERIE	3.9	Girl		No information	CHERIE 'Do you have a Mummy?'	√			
	CHERIE	3.9	Girl		No information	CHERIE 'Do you have a Daddy?'	√			

Findings focused on children positioning self in relation to environment

Several participating children used questioning to establish how they were positioned in relation to others and their environment (Figure 8).

Figure 8. Children's questions: Positioning Self in relation to the World and others

Theme	Child	Age: Y/M	Gender	Inside	Outside	CONTEXT / Question / Co-Researcher's Brief Critical Reflection (BCR)	Verbal	Action	Touch	Gaze
Positioning Self in relation to the World and others	AMELIE	3.0	Girl	√		AMELIE WAS STANDING ON THE CHAIR LOOKING OUT OF THE WINDOW. 'Bye bye, are you going on the slide?'	√			√
	FIONA	2.6	Girl	√		FIONA WAS IN THE ROLE PLAY CORNER AND ASKED HER FRIEND 'Can you put some salt in my dinner?'	√			
	ARON	4.5	Boy		No information	ARON 'I want to be your friend'	√			
	ARON	4.5	Boy		No information	ARON 'I had cake at Mummy's party. Do you like cake?'	√			
	CHERIE	3.9	Girl		No information	CHERIE 'Do you have a Mummy?'	√			
	CHERIE	3.9	Girl		No information	CHERIE 'Do you have a Daddy?'	√			

Findings focused on children checking to confirm and/or conform

Young children asked questions to check and confirm they were conforming to what they thought adults expected of them (Figure 9).

Figure 9. Children's questions: checking to confirm and conform

Theme	Child	Age: Y/M	Gender	Inside	Outside	CONTEXT / Question / Co-Researcher's Brief Critical Reflection (BCR)	Verbal	Action	Touch	Gaze
Checking to confirm and conform	AMELIE	3.0	Girl	√		AMELIE WAS CLEARING UP AND HELPING TO PUT THE CHAIRS AWAY. 'Is it just there?' BCR: Amelie asked the question for reassurance. She held the chair while making eye contact to me (Co-R) asking if the chair belongs over there (table).	√	√		
	ELSPETH	2.10	Girl	√		ELSPETH WAS HAVING LUNCH. 'Can I go and play now?' BCR: Elspeth had a worried face when asking the question because she was so eager to go and play	√			

Findings focused on children seeking help

Young children used questioning in the study to ask for help, rather than seeking information (Figure 10).

Figure 10. Children's questions: Seeking Help

Theme	Child	Age: Y/M	Gender	Inside	Outside	CONTEXT / Question / Researcher's Brief Critical Reflection (BCR)	Verbal	Action	Touch	Gaze
Seeking help	CHARLOTTE	2.2	Girl		√	CHARLOTTE WAS GOING INSIDE GETTING READY FOR LUNCH. 'I want coat off please.'	√	√		
	CHARLOTTE	2.2	Girl		√	CHARLOTTE WAS PLAYING OUTSIDE. 'Up, up please.'	√	√	√	
	ARON	4.5	Boy	No information		ARON 'I am Batman and Batman needs his coat zipped up'	√			
	BRUCE	3.2	Boy	No information		BRUCE 'You do it'	√			
	BRUCE	3.2	Boy	No information		BRUCE 'You play with me'	√			
	CHERIE	3.9	Girl	No information		CHERIE 'I don't know how to play this game'	√			

Discussion

This section discusses critically how the findings from this pilot study address the nature, extent and features of young children's questioning in two ECE settings in the English Midlands. It also considers how their questioning may lead to knowledge acquisition and

learning, and how this pilot study might inform the development of a larger study about young children questioning.

Did young children ask questions to acquire knowledge and learn?

The pilot study findings evidence that children aged 2.2-4.5 years asked questions for different reasons in different ways in their early childhood settings. Some of their questions appeared oriented to learning as they attempted to transform their experiences to help them understand their environment (Kolb, 1984:41) in ways indicated in (i) and (ii) below.

What types of questions did young children ask to acquire knowledge and learn?

Children in the pilot study asked four types of questions. Two categories were oriented to knowledge acquisition and learning: (i) information seeking questions motivated by curiosity and (ii) questions about positioning themselves in relation to their environment. Two further categories are congruent with non-information seeking question types identified by Chouinard (2017:17): (iii) checking questions asked by children to confirm and/or conform to their perceived expectations, and (iv) children's questions seeking help.

(i) Children's information seeking questions motivated by curiosity

Figure 7 evidences that children's questioning was motivated by curiosity to 'seek, obtain and make use of new knowledge': they asked questions in order to acquire knowledge and learn (Chouinard et al., 2007; Lauriola et al., 2015). The pilot study offers new data from the field of education that adds to an area of study previously dominated by psychologists (e.g. Berlyne, 1966; Chouinard et al. 2007; Cifone, 2013; Engel, 2011; Isaacs, 1944; Lauriola et al., 2015:202). Findings in Figure 7 indicate that children asked questions to 'explain the unexpected... resolve uncertainty...and understand the unknown' (Engel, 2011: 626-7) when seeking information to satisfy their curiosity, including epistemic curiosity: the exploratory 'motive to seek, obtain and make use of new knowledge' (Lauriola et al., 2015:202). Initially, Billy (2.10 years) was more interested in exploring Miss Emily's bag of medicine than playing with his toys. Then, still in nappies himself, he wanted to understand why another child would use the toilet, so formulated and asked questions to find out. Elspeth (2.10 years) diverted her attention from the climbing frame to ask why the Co-R was not wearing a coat outdoors, while Della (3.9 years) wanted to be sure she knew the Co-R's name, so sought that information by questioning. Equally, Bruce (3.2 years) and Cherie (3.9 years) used questioning to seek and obtain information (Chouinard et al., 2007; Lauriola et al., 2015).

(ii) Children's questions for positioning self in relation to world and others

Some questions children asked seemed oriented to helping them understand their own position in relation to others and their environment (Figure 8). This category of questions resonates with Komatsu's finding (2010) that a girl asked her mother questions to ascertain aged 4.4-5.8 months to understand herself in relation to her peers at her Japanese *hoikuen* (daycare centre). These types of questions reveal self-awareness, considered a domain of emotional intelligence (Goleman, 1999). Questions asked by Fiona (2.6 years) and Amelie (3.0 years) emerged during play. Aron (4.5 years) invites friendship, reiterating Corsaro's (2003) recognition that young children value peer relationships. In another question, Aron draws on a memory as the basis for exploring another person's preference, and whilst Cherie (3.9 years) asks questions to seek information, these are also oriented to helping her understand how others' experiences relate to her own relationships.

(iii) Children's checking questions

Children in the study used checking questions to confirm or conform to what they seemed to think was required of them (Figure 9). Amelie (aged 3.0) verbalised her question while beginning to enact a response she anticipated: holding the chair, ready to position it in the place confirmed by the adult; Elspeth (2.10 years) requested permission to leave the lunch table to play. This finding reinforces research undertaken by Chouinard et al. (2007: 17) who suggest that children ask non-information seeking questions to clarify and request permission. Equally, Amelie's question 'Is it just there?' and Elspeth's 'Can I go and play now' are both 'yes/no...questions asking whether a particular proposition is true or false' (Berlyne and Frommer, 1966:183).

(iv) Children's questions for seeking help

Some of the questions young children asked were for seeking help (Figure 10): 'requests for action', established by Chouinard et al. (2007: 17) as 'non-information seeking' questions, rather than questions intended to transform experiences into knowledge or learning (Kolb, 1984). There were some requests for personal care: Charlotte (2.2 years) and Aron (4.5 years) asked for help with their coats, while Bruce (3.2 years) and Cherie (3.9 years) requested help to play. Other questions asked by Charlotte (2.2 years) and Bruce (3.2 years) are purely requests for help.

Children's modes of questioning

For each child's question, Co-Rs were asked to identify communication modes that children adopted, including verbal, touch, action, gaze or 'other'. This was included because young children communicate in many diverse ways (Malaguzzi, 1998; Gallas, 1994; Bae 2010). Yet every question recorded by Co-Rs for the pilot study included a verbal element, while only 4/19 (21%) featured a child's action and 4/19 (21%) featured a child's gaze. In the present study, touch was only reported once as a questioning mode for any children's questions and no additional modes of questioning by children were reported. Similarly, Sak's (2020) data that was also gathered in an educational context emphasises young children's verbal questioning. Co-Rs in the present study reported that children used more than one mode of questioning for 6/19 (32%) of questions, and two modes for 3/19 (16%) of questions, including verbal and action modes (n=2) and verbal and touch modes (n=1). They adopted three modes of questioning for 2/19 (11%) of their questions (verbal, action and gaze / verbal, action and touch). Chouinard (2007) recognises that questioning oriented to knowledge acquisition is enacted in various forms including verbalising, gestures and facial expressions, and that young children's questions are likely to be embodied. However, young children's verbal questions dominated the data that were collected for the present study.

Children's Artifacts

It is a common human trait to imbue objects with emotional meaning and symbolism derived from experiences (Csikszentmihalyi and Rochberg-Halton, 1981; Winnicott, 1953). In this study, children used artefacts as tools for their questioning in their early childhood settings. These artifacts included a chair, medicine syrup in a plastic bag, coats, a slide, salt, dinner, cake, Mummy and Daddy. Objects can act as a conceptual resources that support young children's questioning. Other studies have highlighted simple everyday artifacts that young children choose to interact with, for example sticks (Waller, 2007), dirt (Clark, 2010), wooden blocks (Gura, 1992), pebbles, (fir) cones, and shells (Gandini, 1998). Garvey (1991:51) notes that '...objects are the prime source of social exchange for the toddler'. Chouinard's study (2017) conducted in the field of developmental psychology revealed young children using objects for both information-seeking and non-information seeking questioning.

Children's ages and their questions

Among participating children aged 2.2-4.5 years, the mean age of children checking to confirm or conform was lowest (2.6 years). The mean age of children asking curiosity/ information-seeking questions was 3.0 years, for children asking questions to seek help 3.2

years and for children asking questions to position themselves in relation to the World and others 3.7 years. Whereas younger children's questioning tended to focus on non-information seeking questions (Chouinard et al., 2007), including prosaic requests for personal care, clarification and permission, the oldest children's questioning in ECE settings were most likely to feature self-awareness (Goleman, 1995). Nevertheless, children's curiosity/information-seeking questions are likely to be optimal for promoting knowledge acquisition and learning, because epistemic curiosity is a powerful 'motive to seek, obtain and make use of new knowledge (to) understand the unknown' (Lauriola et al., 2015:202).

Children's gender and their questions

The distribution of question types asked by girls (G) when compared with boys (B) varied. Only girls asked checking for confirming/conforming questions, and more questions were asked by girls than boys about positioning themselves in relation to the World and others (G: 4/6, B:2/6). Questions asked by children seeking information (G: 4/7, B: 3/7) and seeking help (G: 3/6, B: 3/6) were more evenly distributed according to gender. However, twice as many girls (n=6) as boys (n=3) participated in the study. When this was accounted for, boys were twice as likely to ask questions to seek help than girls, and 1.5 times more likely to ask questions to seek information than girls. Pilot study findings, then, indicate some gender disparity regarding types of questions young children ask in their settings.

Children's agency and their questioning

The nature and extent of children's questioning in this pilot study is limited. On the one hand, children's information-seeking questions, motivated by their epistemic curiosity, demonstrated young children's capacity and agency in use questioning to form and express their views about matters they considered important in their ECE settings (Chouinard et al., 2007; Lauriola et al., 2015; OHCHR, 1989/12/1). The eclectic nature of the questions children formulated for positioning themselves in relation to the world and others (Figure 8) also reflected children's agency to formulate and ask them (Komatsu, 2010). Equally, Amelie and Elspeth appeared free to express their checking questions (Figure 9), and since the Co-Rs recorded and reported children's questions, it may be argued that these were given at least some 'weight' (OHCHR, 1989/12/1).

On the other hand, there were indications that the children's views expressed through questioning may not have been 'given due weight' commensurate with agency (OHCHR, 1989/12/1). Data recorded by Co-Rs focused predominantly on verbal, not non-verbal

questioning, suggesting that the Co-Rs tended to interpret young children's questions 'in adult terms' (Hardman, 1973: 95). Equally, Co-Rs provided no data regarding adults' responses to children's information-seeking or positioning questions. Moreover, the purpose behind children's checking questions was deferential: Amelie and Elspeth asked adults for permission to act, indicating that neither child believed she had agency to form her own view (OHCHR, 1989/12/1). Therefore, participating children could not fully realise either 'a sense of their rights and responsibilities' (Giroux, 2020: 176), or their positions as agentic, competent participants 'in the creation of themselves' through questioning (Dahlberg and Lenz Taguchi, 1994:2; McNair and Powell, 2020).

Conclusions, Reflections and Implications

This article has explored young children's questions in their ECE settings as free expressions of their views in matters that affect them, with reference to UNCRC Article 12, Part 1 (OHCHR, 1989). The exploration centred on findings from the pilot stage of the *Young Children's Questions* study, guided by critical pedagogy (Giroux, 2020). The aim of this initial YCQ stage was to investigate the nature and extent of young children's questioning in ECE settings, how it may lead to knowledge acquisition and learning, and how learning from this study might inform development of a larger study focused on young children questioning. Two Co-Rs, who were also early childhood students, gathered observation data concerning children's questions in two settings, to respond to four research questions, forming the pilot study's conceptual framework.

RQ1/ Do young children ask questions in their settings to acquire knowledge and learn?

Young children aged 2.2-4.5 years asked questions in their ECE settings that were oriented to acquiring knowledge and learning. However, not all questions they asked were oriented to knowledge acquisition and learning.

RQ2/ What questions do young children ask in their settings to acquire knowledge and learn?

Children asked four types of question. Those focused on *Curiosity/ information seeking* and *Positioning self in relation to World and others* were oriented to knowledge acquisition and learning, particularly *Curiosity/ information seeking* which promotes epistemic curiosity (Lauriola et al., 2015). Conversely, children's questions concerning *Checking to confirm and conform*, and *Seeking help* focused on issues of personal care, clarification and asking permission and were not geared to knowledge acquisition and learning. Young children's

concerns evident in their questioning for *Checking* and *Seeking help* suggest that the children did not consider themselves agentic in their ECE settings.

RQ3/ What are different ways that young children ask questions in early childhood settings?

Children used some different questioning modes. Every child's question that Co-Rs recorded included a verbal element, but only some featured a child's action or gaze. Touch was only recorded once as a child's questioning mode and no other questioning modes were recorded. Co-Rs reported that children adopted more than one mode for 6/19 (32%) of their questions. Strong emphasis in the data on young children's verbal communication for questioning resonates with findings elsewhere (Sak, 2020), and indicated that adults in settings may not readily recognise the many diverse modes young children adopt for questioning. These findings indicate that adults in ECE settings need high level skills and sensitivity to recognise and respond to the diverse modes young children may use for questioning. Without these practitioner attributes, young children's right to be social agents using questioning to 'express their views freely in matters affecting them' in their ECE settings and for that expression to be 'given due weight' may not be realised (OHCHR, 1989/12/1).

RQ4/ How can the YCQ pilot study inform a larger YCQ study?

Conducting the YCQ pilot study was helpful for highlighting several points that will be addressed when designing the main study.

- Participation in the study was limited: only 2 Co-Rs, 2 settings and 9 children participated.
- Recording practitioners', children's and researchers' ethnicities, and children's home languages would allow for consideration of possible effects of these variables on data.
- Each stage towards securing participant children's assent to participate presented a potential barrier to participation, so this model should be revisited.
- Co-Rs did not use all data collection methods available: no photographs, narrative observations or interview conversations with children were submitted, and few children's artefacts used in their questioning were recorded. Preparation for the main study should include enhanced data collection training.
- Only some observations included Co-Rs' reflective notes and contextual information; when they did, analysis was eased. Understanding the context of each question supported interpretation and understanding of the function and potential of each child's question for knowledge acquisition and learning.

- Low uptake by ECS students and ECE settings and incomplete data suggest weak motivation to learn about...
 - Young children’s questioning and its potential to realise their right to express their views and for those views to be respected
 - Young children’s agency, knowledge acquisition and learning; these issues highlight pressures of an education system driven by performativity.
- Preparation for the main study should offer observers enhanced support for recognising young children’s multiple communication modes.

This pilot study has highlighted issues concerning about young children’s questioning as leverage for their knowledge acquisition and learning in their ECE settings. These issues are fundamental to young children’s right to use questioning to express their views freely concerning their education, and for those views to be ‘given due weight’ (OHCHR, 1989/12/1). They are also central to arguments that shape critical pedagogy (Giroux, 2020). Low uptake, weak engagement and young children’s anxiety to conform reveal effects of an extrinsically imposed performativity agenda on practitioners, students and young children in the ECE field. They ‘illuminate the role that pedagogy plays as part of a struggle over assigned meanings, modes of expression, and directions of desire’ (Giroux, 2020:4), and find that pedagogy wanting. Based on learning afforded by these findings, a larger study is indicated to explore in greater depth and breadth young children’s right to express their views by questioning in their ECE settings, and for those views to be ‘given due weight’ (OHCHR, 1989/12/1).

Acknowledgements

The author extends grateful thanks to:

- Children, parents and staff in the study settings who took part in the study
- Colleagues who supported the preparation work
- Co-Researchers Taylor Kenrick and Esther Olasope

Disclosure Statement

No potential conflict of interest was reported by the author.

References

Alexander, R. 2020. *A Dialogic Teaching Companion*. Abingdon: Routledge.

- Arterberry, M.E. and M.H. Bornstein. 2015. "Categorization of real and replica objects by 14- and 18-month-old infants". *Infant Behaviour and Development*, 35 (3): 606-612. DOI: [10.1016/j.infbeh.2012.04.007](https://doi.org/10.1016/j.infbeh.2012.04.007)
- Bae, B. 2010. "Realising Children's Right to Participation in Early Childhood Settings: Some critical issues in a Norwegian context." *Early Years* 30: (3): 205 — 21.
- Ball, S.J. 2003. "The teacher's soul and the terrors of performativity." *Journal of Education Policy* 18 (2): 215-228.
- Baram-Tsabari, A., R.J. Sethi, L. Bry, and A. Yarden. 2006. "Using Questions sent to an Ask-A-Scientist site to identify children's interests in science." *Science Education* 90(6): 1050-1072
- Berlyne D.E. 1966. "Curiosity and exploration" *Science* 153: 25-33
- Berlyne, D.E. and F.D. Frommer. 1966. "Some Determinants of the Incidence and Content of Children's Questions." *Child Development* 37(1), 177-189.
- Biesta, Gert. 2009. "Good education in an age of measurement: on the need to reconnect with the question of purpose in education." *Educational Assessment Evaluation and Accountability* 21: 33–46 DOI 10.1007/s11092-008-9064-9
- Boyatzis, R. E. 1998. *Transforming qualitative information*. London: Sage Publications
- Bradbury, A. 2019. "Datafied at four: the role of data in the 'schoolification' of early childhood education in England." *Learning, Media and Technology* 44:1, 7-21, DOI: [10.1080/17439884.2018.1511577](https://doi.org/10.1080/17439884.2018.1511577)
- Bridges, D., P. Smeyers, and R. Smith (Eds.). 2009. *Evidence-based Education Policy*. Chichester: Wiley Blackwell.
- British Educational Research Association. 2018. *Ethical Guidelines for Educational Research*. London: British Educational Research Association
- Bruner, J. (1966) *Toward a Theory of Instruction*. Cambridge, MA: Bellknap Press
- Causey, J. A. 2015 ¿Questioning? *Phi Kappa Phi Forum* 95 (2): 24
- Chouinard, M.M., P.L. Harris and M.P. Maratsos. 2007. "Children's questions: a mechanism for cognitive development." *Monographs of the Society for Research in Child Development* 72(1): 1-129.
- Cifone, M.V. 2013. "Questioning and Learning: How do we recognise children's questions?" *Curriculum and Teaching Dialogue* 15 (1-2): 41-55
- Clark, A. 2010. *Transforming Children's Spaces*. London: Routledge.
- Corsaro W. 2003. *We're Friends, Right? Inside kids' culture*. Washington, DC: Joseph Henry Press.
- Craft, A. 2000. *Creativity across the primary curriculum*. London: Routledge.

- Creswell, J. 2013. *Qualitative Inquiry and Research Design*. Thousand Oaks, CA: Sage.
- Csikszentmihalyi, M., and E. Rochberg-Halton. 1981. *The Meaning of Things: Domestic symbols and the self*. Cambridge: Cambridge University Press.
- Dahlberg, G., P. Moss and A. Pence. 1999. *Beyond Quality in Early Childhood Education and Care*. London: Routledge.
- Dahlberg, G. and H. Lenz Taguchi. 1994. *Förskola och skola och om visionen om en mötesplats, [Preschool and school and the vision of a meeting-place]*. Stockholm: HLS Förlag.
- Davis, E. A. 1932. "The Form and Function of Children's Questions." *Child Development* 3 (1): 57–74.
- De Grefte, J. 2021. "Knowledge as Justified True Belief". *Erkenntnis*, DOI: 10.1007/s10670-020-00365-7
- De Houwer, J., D. Barnes-Holmes, and A. Moors. 2013. "What is learning? On the nature and merits of a functional definition of learning". *Psychonomic Bulletin and Review*, 20: 631–642, DOI 10.3758/s13423-013-0386-3
- De Jesus, H. P., P. Almeida, J. Teixeira-Dias and M. Watts. 2007. "Where learners' questions meet modes of teaching. A study of cases." *Research in Education*. 78 (2): 1-20. DOI: 10.7227/RIE.78.2
- Delbecq, Andre L. and Andrew H. VandeVen. 1971. "A Group Process Model for Problem Identification and Program Planning." *Journal of Applied Behavioral Science* VII (July/August, 1971): 466 -91.
- Department for Education. 2013. *Early Years Teachers' Standards*. Accessed 13.3.21 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/211646/Early_Years_Teachers_Standards.pdf
- Dillon, J. T. 1982. "Problem finding and solving." *Journal of Creative Behavior* 16, 97-111. DOI: 10.1002/j.2162-6057.1982.tb00326.x.
- Dillon, J.T. 1983. *Teaching and the Art of Questioning*. Bloomington, Indiana: Phi Delta Kappan Educational Foundation.
- Early Childhood Studies Degree Network. 2018. *Early Childhood Graduate Practitioner Competencies*. Accessed: 14.12.20. <https://www.ecsdn.org/ecgpc-booklet-oct-2019/>
- Eason, S.H., L.F. Goldberg, K.M. Young, M.C. Geist, and L.E. Cutting. 2012. "Reader-Text Interactions: How Differential Text and Question Types Influence Cognitive Skills Needed for Reading Comprehension." *Journal of Educational Psychology* 104(3): 515–528. DOI:10.1037/a0027182.
- Engel, Susan. 2011. "Children's Need to Know: Curiosity in Schools." *Harvard Educational Review* 81(4): 625-645,784.
- Engel, Susan. 2015. *The Hungry Mind*. Cambridge, MA: Harvard University Press.

Ephgrave, Anna. 2018. *Planning in the Moment with Young Children*. Abingdon: Routledge.

Fahey, G. L. 1942. "The questioning activity of children." *The Journal of Genetic Psychology*. 60: 337-357.

Filipi, A. 2009. *Toddler and Parent Interaction: The organisation of gaze, pointing and vocalisation*. Amsterdam: John Benjamins Publishing Company.

Fleer, M. 2020. "Studying the relations between motives and motivation – How young children develop a motive orientation for collective engineering play." *Learning, Culture and Social Interaction* 24. <https://doi.org/10.1016/j.lcsi.2019.100355>.

Frazier, B.N., S.A. Gelman, and H.M. Wellman. 2009. "Preschoolers' Search for Explanatory Information Within Adult-Child Conversation." *Child Development* 80 (6): 1592–1611. DOI:10.1111/j.1467-8624.2009.01356.x

Freire, P. 1972. *Pedagogy of the Oppressed*. Harmondsworth: Penguin.

Gallas, K. 1994. *The Languages of Learning: How children talk, write, dance, draw, and sing their understanding of the world*. New York: Teachers College Press.

Gallas, K. 1995. "Talking Their Way Into Science: Hearing Children's Questions and Theories." New York: Teachers' College Press.

Gandini, L. 1998. Educational and Caring Spaces. In C. Edwards, L. Gandini and G. Forman (Eds.) *The Hundred Languages of Children*. West Port, CT: Ablex. Pp. 161-178.

Garlick, R., and R.C. Laugksch. 2008. "Teaching Children to ask investigable questions in science." *School Science Review* 90 (331): 119-127.

Garvey, C. 1991. *Play*. London: Fontana Press.

Gauvain., M., R.L. Munroe, and H. Beebe. 2013. "Children's Questions in Cross Cultural Perspective: A Four Culture Study." *Journal of Cross-Cultural Psychology* 44 (7): 1148–1165.

Giroux, H. 2020. *On Critical Pedagogy*. 2e. New York: Bloomsbury Academic.

Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzman, P. Scott, and M. Trow. 1994. *The New Production of Knowledge*. London: Sage.

Given, L.M. 2017. It's a New Year...So Let's Stop the Paradigm Wars." *International Journal of Qualitative Methods*, 16: 1–2, DOI: 10.1177/1609406917692647

Goleman, D. 1995. *Emotional Intelligence*. New York: Bantam Books

Gordon, J. 2012. "Questioning." In *Plato's Erotic World: From Cosmic Origins to Human Death*, 53-85. Cambridge: Cambridge University Press. DOI:10.1017/CBO9781139162265.003

Griffiths, M. 1998. *Educational Research for Social Justice*. Buckingham: Open University Press.

- Gura, P. (Ed.) 1992. *Exploring Learning*. London: Paul Chapman.
- Hardman, C. 1973. "Can there be an Anthropology of Children?" *Journal of the Anthropology Society of Oxford* 4 (1): 85-99.
- Hedges, H., and M. Cooper. 2016. "Inquiring minds: theorizing children's interests." *Journal of Curriculum Studies* 48:3, 303-322, DOI: 10.1080/00220272.2015.1109711
- Helm, J. H., and Lillian G. Katz. 2016. *Young investigators: the project approach in the early years*. 2e. New York: Teachers College Press.
- Ireland, J. 2017. "Questions." *Educating Young Children* 23(1): 43-45
- Isaacs, S. 1944. *Intellectual Growth in Young Children*. London: Routledge.
- Jirout, J.J. 2020. "Supporting Early Scientific Thinking Through Curiosity." *Frontiers in Psychology* 11: 1717. DOI: [10.3389/fpsyg.2020.01717](https://doi.org/10.3389/fpsyg.2020.01717)
- Kilpatrick, W.H. 1918. "The Project Method." *Teachers' College Record* 19: 319-335
- Kitchin R., and T. Lauriault. 2014. *Towards critical data studies: Charting and unpacking data assemblages and their work*. Available at: https://papers.ssrn.com/sol3/Data_Integrity_Notice.cfm?abid=2474112
- Komatsu, K. 2010. "Emergence of Young Children's Presentational Self in Daily Conversation and Its Semiotic Foundation." *Human Development* 53: 208-228. DOI: 10.1159/000320047
- Komatsubara, T., M. Shiomi, T. Kanda, and H. Ishiguro. 2018. "Can Using Pointing Gestures Encourage Children to Ask Questions?" *International Journal of Social Robotics* 10: 387-399. DOI: 10.1007/s12369-017-0444-5
- Kohn, A. 1999. *The Schools our children deserve*. Boston: Houghton Mifflin Company.
- Kolb, D. 1984. *Experiential Learning*. Engelwood Cliffs: Prentice Hall.
- Lansdown, G. 2005. *The evolving capacities of the child*. Florence: Innocenti Research Centre, UNICEF/Save the Children.
- Lauriola, M., J.A. Litman, P. Mussel, R. De Santis, H.M. Crowson, and R.R. Hoffman. 2015. "Epistemic curiosity and self-regulation." *Personality and Individual Difference* 83: 202-207. DOI: [10.1016/j.paid.2015.04.017](https://doi.org/10.1016/j.paid.2015.04.017)
- Legare, C. H., C. M. Mills, A. L. Souza, L. E. Plummer, and R. Yasskin. 2013. "The use of Questions as Problem-Solving Strategies During Early Childhood." *Journal of Experimental Child Psychology* 114 (1): 63-76.
- Malaguzzi, L. 1998. "The Hundred Languages of Children." In C. Edwards, L. Gandini and G. Forman (1998) *The Hundred Languages of Children*, 2-3. Westport, CT: Ablex.

Malaguzzi, L., in Cagliari P., M. Castegnetti, C. Giudici, C. Rinaldi, V. Vecchi, and P. Moss, (Eds). 2016. *Loris Malaguzzi and the Schools of Reggio Emilia: A Selection of His Writings and Speeches 1945–1993*. Routledge: London.

McNair, L.J. and S. Powell. 2020. “Friedrich Froebel: a path least trodden”. *Early Child Development and Care*, DOI: 10.1080/03004430.2020.180329

Morgan, N. and J. Saxton. 1994. *Asking better questions: models, techniques and classroom activities for engaging students in learning*. Pembroke: Blackwell Publishing, Ltd.

Moss, P. 2016. “Early Years PISA Testing.” *Early Years Educator* 18 (6): 14-16.

Murray, J. 2012. “Young Children's Explorations: Young children's research?” *Early Child Development and Care*. 182 (9): 1209-1225. DOI: [10.1080/03004430.2011.604728](https://doi.org/10.1080/03004430.2011.604728)

Murray, J. 2013. “Young Children’s Research Behaviour? Children aged 4-8 years finding solutions at home and at school.” *Early Child Development and Care*. 183 (8): 1147-1165. DOI: [10.1080/03004430.2013.792255](https://doi.org/10.1080/03004430.2013.792255)

Murray, J. 2016. “Young Children ARE Researchers: Children aged 4-8 years engage in important research behaviour when they base decisions on evidence.” *European Early Childhood Education Research Journal*. 24 (5): 705-720. DOI: [10.1080/1350293X.2016.1213565](https://doi.org/10.1080/1350293X.2016.1213565)

Murray, J. 2017a. *Building Knowledge in Early Childhood Education: Young Children Are Researchers*. Abingdon: Routledge.

Murray, J. 2017b. Welcome in! How the academy can warrant recognition of young children as researchers. *European Early Childhood Education Research Journal*. 25 (2): 224-242. DOI: [10.1080/1350293X.2017.1288016](https://doi.org/10.1080/1350293X.2017.1288016)

Murray J. 2019. “Observing and assessing children”. In D. Fitzgerald and H. Maconochie (Eds). *Early Childhood Studies*. London: Sage. 339-358

Murray, J. 2020. *Young Children Are Researchers*. Accessed 14.12.20
<https://mypad.northampton.ac.uk/year/>

National College for School Leadership. 2013. *Teachers’ Standards (Early Years)*. Accessed: 14.2.20
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/211646/Early_Years_Teachers_Standards.pdf

Nelson, D.G.K. and K. O’Neil. 2005. “How do parents respond to children’s questions about the identity of artifacts?” *Developmental Science* 8 (6): 519–524.

Nicholson, S. 1971. “How not to cheat children. The theory of loose parts.” *Landscape Architecture Quarterly* 62(1), 30 –34.

Oancea, A. and R. Pring. 2009. “The Importance of Being Thorough: On Systematic Accumulations of ‘What Works’ in Education Research.” *Journal of Philosophy of Education* 42 (S1): 15-39. DOI: [10.1111/j.1467-9752.2008.00633.x](https://doi.org/10.1111/j.1467-9752.2008.00633.x)

OECD. 2020. *International Early Learning and Child Well-Being Study*. Accessed: 14.12.20. <http://www.oecd.org/education/school/the-international-early-learning-and-child-well-being-study-the-study.htm>

Office of the High Commissioner for Human Rights (OHCHR). 1989. *The United Nations Convention on the Rights of the Child*. Accessed: 14.12.20 <http://www2.ohchr.org/english/law/crc.htm>

Ofsted. 2019a. *School Inspection Update. January 2019*. Accessed: 14.12.20 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/772056/School_inspection_update_-_January_2019_Special_Edition_180119.pdf

Ofsted. 2019b. *The education inspection framework*. Manchester: Ofsted. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/801429/Education_inspection_framework.pdf

Official Journal of the European Union. 2017. *Council Recommendation of 22 May 2017 on the European Qualifications Framework (2017/C 189/03)*. Accessed: 18.3.21 [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017H0615\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017H0615(01)&from=EN)

Olsson, M. L. 2013. "Taking Children's Questions Seriously: the need for creative thought." *Global Studies of Childhood* 3(3): 230-253. DOI: [10.2304/gsch.2013.3.3.230](https://doi.org/10.2304/gsch.2013.3.3.230)

Piaget, J. 1926. *The Language and Thought of the Child*. New York: Harcourt Brace and Company Ltd.

Ronfard, S., I. M. Zambrana, T. K. Hermansen and D. Kelemen. 2018. "Question-asking in childhood: A review of the literature and a framework for understanding its development." *Developmental Review* 49, 101–120. <https://doi.org/10.1016/j.dr.2018.05.002>

Ryan, R. M., and E. L. Deci. 2000. "Self-determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-being." *American Psychologist* 55 (1): 58–68.

Sak, R. 2020. "Preschoolers' Difficult Questions and Their Teachers' Responses." *Early Childhood Education Journal* 48, 59–70. DOI: [10.1007/s10643-019-00977-x](https://doi.org/10.1007/s10643-019-00977-x)

Sato, K. 2016. "A Sensitivity to Good Questions: A virtue-based approach to questioning." *Episteme*, 13 (3): 329–341. DOI: [:10.1017/epi.2015.43](https://doi.org/10.1017/epi.2015.43)

Siraj-Blatchford, Iram, and Laura Manni. 2008. "“Would you like to tidy up now?” An analysis of adult questioning in the English Foundation Stage." *Early Years*. 28 (1): 5-22.

Somekh, B. and T. Schwandt Eds.). (2007) *Knowledge Production: Research work in interesting times*. Abingdon: Routledge.

Stake, R. 1998. *The Art of Case Study Research*. Thousand Oaks: Sage.

Stenhouse, L. 1981. "What Counts as Research?" *British Journal of Educational Studies*, 29(2): 103-114

- Stivers, T., J. Sidnell, and C. Bergen. 2018. "Children's responses to questions in peer interaction: A window into the ontogenesis of interactional competence." *Journal of Pragmatics*. 124: 14-30.
- Sully, J. 1896. *Studies of childhood*. New York: D. Appleton and Company.
- Tizard, B., and M. Hughes. 1984. *Young children learning*. Cambridge, MA: Harvard University Press.
- Tomasello, M. 2003. *Constructing a Language*. Cambridge, MA: Harvard University Press.
- UN Committee on the Rights of the Child: General Comment No. 12. 2009. *The right of the child to be heard* (CRC/C/GC/12).
<https://resourcecentre.savethechildren.net/node/5040/pdf/5040.pdf>
- United Nations (2015) *Sustainable Development Goals*. Accessed: 14.12.20.
<https://sdgs.un.org/>
- University of Northampton. 2014. *Ethics Code and Procedures*. Northampton: University of Northampton
- Waller, T. 2010. "'Let's Throw that Big Stick in the River': An exploration of gender in the construction of shared narratives around outdoor spaces." *European Early Childhood Education Research Journal*, 18 (4): 527-542.
- Wells, G. 1999. *Dialogic Inquiry*. Cambridge: Cambridge University Press.
- Whitton, D. 2015. *Teaching and Learning Strategies*. Port Melbourne: Cambridge University Press
- Wing, L. 1991. "The Interesting Questions Approach to Learning." *Childhood Education*, 69(2): 78-81
- Winnicott, D. 1953. "Transitional objects and transitional phenomena." *International Journal of Psychoanalysis*, 34: 89-97.
- Wragg, E C. and G. Brown. 2001. *Questioning in the primary school*. Abingdon: Routledge.

**-Young Children's Questions-
Co-Researchers' Script:
Information for children and children's assent**

Before you ask children to take part, ensure you have written consent from the setting leader and each child's parents.

From your knowledge of each child and the ethical requirements of the project, decide which questions and statements to share with children before you collect data

You can use a puppet or teddy to help with this activity, if you would like to.

Please ask the children and invite their responses:

- I want to do some finding out for a big project called Young Children's Questions. In the Young Children's Questions project, as well as being your teacher, I am being a researcher. Do you know what a researcher is? It is someone who finds things out.
- 'What is a question?'
- 'Can you think of some questions?'
- 'Is there something you don't know?'
- 'Can you think of a question to ask about it?'
- 'If you want to find things out, what do you do?'
- 'I want to find out about ways you find things out – can you think of some ways I can do that?'
- 'So... in the Young Children's Questions project you are being researchers – people who find things out.'
- 'For the Young Children's Questions project, some other teachers at nurseries are asking the children in their nurseries about the questions they ask.'
- 'We're going to collect together all the ways that children show and tell us they ask questions and we're going to write them all down.'
- 'Next we're going to tell lots of other people about the things children tell us about their questions – so that we can find out what questions children ask and how they ask them'
- 'Your mummies and/or daddies have told me you can be in the Young Children's Questions project. If you would like to be in the project, this is what we'll do. If you ask questions when you're busy playing, I will write them down. I'll take some photos of things you make that show you are asking questions and I will ask you about your questions.'
- 'Has anybody got any questions about the Young Children's Questions project now?'
- 'Would you like to be in the Young Children's Questions project?'
- 'If you would, show me your thumbs up! If you don't, show me your thumbs down. If you're not sure, do thumbs sideways.' (*You can take a photo of their thumbs to demonstrate assent!*)

Please repeat the last two questions on each day you collect data