YCAR

Young Children As Researchers

Basing Decisions on Evidence: Young children's research behaviour?

EECERA
European Early Childhood Education Research Association

23rd Conference, Tallinn
28th -30th August 2013

THE UNIVERSITY OF NORTHAMPTON
Transforming lives, inspiring change

Dr. Jane Murray
Jane.murray@northampton.ac.uk

Starting points...

Early childhood teacher to senior lecturer

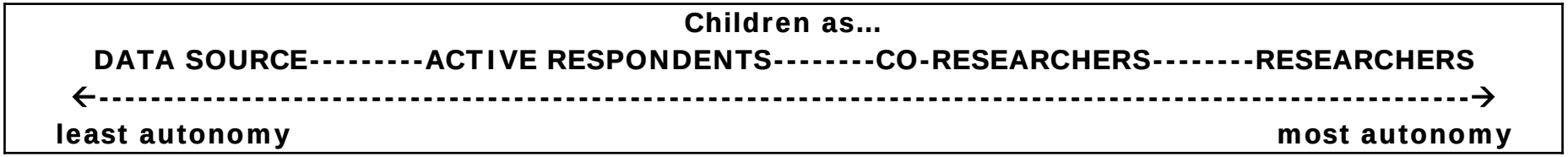
Some questions…

Are young children capable of forming and expressing their own views?

Should young children have the right to seek, receive and impart information and ideas? (OHCHR, 1989)

‘Children are excluded from the adult world and the rarefied worlds of academia and policymaking’ (Redmond, 2008:9)

Can young children be researchers?



Continuum of Children in Research (Fielding, 2001)

‘Epistemic interest and enquiry’: can we interpret children’s natural everyday behaviours as research? (Isaacs, 1944; Murray, 2012a)

YCAR Aim and research questions

Aim: To conceptualise ways in which young children aged 4-8 years are researchers, could develop as researchers and may be considered to be researchers

Research Questions:

- What is the nature of ECEC research?
- How can a study be conducted to establish young children as researchers?
- What enquiries are important to young children and how can they engage in them?
- What support structures might encourage young children to participate in research? What barriers might prevent this?

YCAR Methodology

How can a study be conducted to establish young children as researchers?

Ethical Framework (BERA, 2004) - Form and Function -

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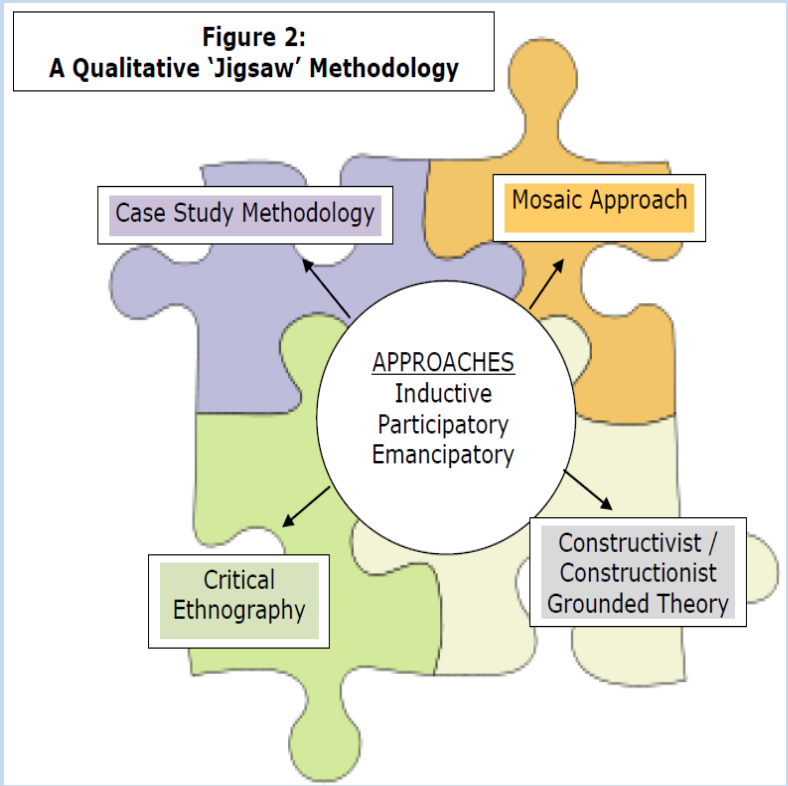


(Freire; 1972; Habermas, 1987; Brown and Strega, 2005)

(Charmaz, 2006; Carspecken, 1996; Clark and Moss, 2011; Bassey, 1999)

YCAR Participants (Phases I and II)

An Overview of Phase I Participants				
Phase I Method	**Pilot Survey**	**Survey**	**Interviews**	**Focus Group**
Perspectives sought from ...	2 PEYERs (Professors)	20 PEYERs	9 PEYERs	5 PEYERs
Location	2 universities	2 universities	1 universities 1 participant home	1 university

Phase II Participant Profile							
	Number of children	Number of practitioners	Number of 'classes'	Ages of children	Gender share of children	Number and gender share of practitioners	Most recent Ofsted Inspection grade
Ash Setting	32	2 (+supply teachers)	1	7-8 years	20 boys 12 girls	3 [1m, 2f]	2 [Good]
Beech Setting	46	7 (+supply teachers)	2	4-5 years	23 boys 23 girls	8 [8f]	2 [Good]
Cherry Setting	60	6	2	4-5 years	40 boys 20 girls	6 [1m, 5f]	2 [Good]

YCAR Phase III Participants

Phase III Participant Profile	Annie and Family A	Billy and Family B	Gemma and Family C	Harry and Family D	Martin and Family E
ECEC Setting (Phase II)	Ash	Ash	Beech	Beech	Cherry
Gender	Girl	Boy	Girl	Boy	Boy
Age during home fieldwork	8 years	8 years	5 years	5 years	5 years
Living with...	Mother (MTHR-A) Father (FTHR-A)	Mother (MTHR-B) Father (FTHR-B) Sister (SIS-B) – aged 9 yrs	Mother (MTHR-C) Father (FTHR-C) Brother (BRO-C) – aged 8 yrs	Mother (MTHR-D) Father (French) (FTHR-D) Brother (BRO-D) – aged 4 yrs	Mother (MTHR-E) Father (FTHR-E) Sister (SIS-B) – aged 4 yrs

YCAR Multi-modal Methods

Phase 1 Methods with PEYERs	Survey	Interviews	Focus Group

Phases II and III Multi-modal Methods (Clark and Moss, 2011)	Documents	Interview conversations
Observations	Focus Groups	Informal discussions
Field notes	Children's artefacts	Photographs
Video recordings	Audio recordings	Research Behaviour Framework (RBF) Analysis Sheets

YCAR Findings – Phase I:

What is the nature of ECEC research?

1. Seek a solution	21. Investigate
EXPLORE: 2. Want to explore	22. Enquire
EXPLORE: 3. Explore with an aim	23. Test and check
EXPLORE: 4. Explore without an aim	24. Are systematic
EXPLORE: 5. Explore with an aim which changes during the process	25. Are objective
EXPLORE: 6. Explore with a fine focus	**26. Base decisions on evidence**
EXPLORE: 7. Explore broadly	27. Use processes that are fit for purpose
8. Find out why things happen	28. Can replicate process
9. Find out how things happen	29. Can replicate output
10. Examine problems	30. Use and apply findings in new contexts
11. Develop increasingly better understanding of the world through exploration	31. Believe what they are doing is good
12. Increase knowledge	32. Are focused on their chosen activity
13. Find a solution	33. Reflect on process
14. Go beyond instinct	34. Reflect on results
15. Gather data	35. Do no harm
16. Build on others' work	36. Participate with others
17. Take account of context	37. Can communicate what they are attempting to do
18. Plan	38. Can communicate what they have achieved
19. Conceptualise	39. Make links
20. Question	

Questions relating to Children Basing Decisions on Evidence

- How do young children construct knowledge by basing their decisions on evidence?
- Can revealing young children as agents who make decisions based on evidence promote social justice?

Extant literature:
What is Decision-making Based on Evidence?

Evidence

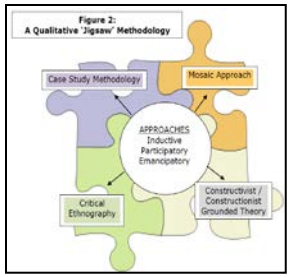
- No universal definition of 'evidence' (Oancea and Pring, 2008)
- Dating back to the Enlightenment, sensory information has been used to warrant *a posteriori* propositions (Bonjour, 1998)
- Warrant is defined in diverse ways (Bridges *et al*., 2009)
- During the C20th '...the verification of meaningfulness through observation' gained popularity with policymakers seeking 'what works' (Thomas, 2007:3; Biesta, 2007).

Decision-making

- 'Acts or options among which one must choose, the possible outcomes or consequences of these acts and the contingencies or conditional probabilities that relate outcomes to acts' (Tversky and Kahneman, 1981: 453)
- Decision-making and reasoning are correlated mental processes (Johnson-Laird and Shafir, 1993)
- Decision-making is linked with agency and participation (Rudduck and McIntyre, 2006; Cox *et al*., 2010)

Decision-making Based on Evidence is concerned with information assimilated through the senses, combined with reasoning, to establish rational choice.

YCAR Analysis



The Recursive Process of Phase II and III Analysis and Interpretation

Transcribe data and apply numerical codes

	Constructivist Grounded Theory Analysis and Interpretation Methods (Charmaz, 2006)	Critical Ethnography Analysis and Interpretation Methods		Mosaic Approach (Clark and Moss, 2001)	Case Study (Bassey, 1999; Yin 2012)
		Carspecken (1996)	Thomas (1993)		
Constant comparison	Early Memo-writing	Preliminary reconstructive analysis	Repeated thinking	Child conferencing / listening	Analytic statements
	Initial Coding	Reconstructive analysis Dialogic data generation			
	Focused Coding	Dialogic data generation			
	Categories	Discovering system relations		Listening	
	Axial coding	Discovering system relations			
	Advanced Memo-writing	Reconstructive analysis			
	Theoretical coding	Discovering system relations			
		Using system relations to explain findings			

YCAR Findings – Phase II and III Volume of Data

Prime Research Behaviour	Sections	Number of pages	Number of words
(2-7) Explore	1	190	29,376
	2	181	42,144
	3	65	20,813
	Sub-total	**436**	**92,333**
(13) Find a Solution	1	162	20, 769
	2	208	62, 758
	Sub-total	**370**	**83, 527**
(19) Conceptualise	1	100	19, 597
	2	177	31, 393
	3	84	33, 255
	Sub-total	**361**	**84, 245**
(26) Base Decisions on Evidence	1	225	48,235
	2	252	88,921
	3	166	49,202
	Sub-total	**643**	**186,358**
4 Prime Research Behaviours:	**Total**	**1810**	**446,463**

YCAR Findings – Phases II and III

What support structures might encourage young children to participate in research?

What barriers might prevent this?

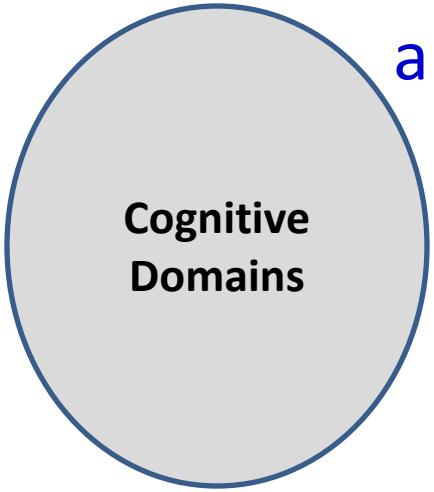
‘Building Blocks’ for Basing Decisions on Evidence: Young Children As Researchers (Murray, 2012)

				BDoE5. Meta-cognition	
BDoE1. Applies prior experience				**BDoE7. Trial and error**	**BDoE11. Methodological issue**
BDoE6. Applies mental model	**BDoE2. Values peer perspectives**			**BDoE8. Thinks strategically**	**BDoE12. Sampling issue**
BDoE10. Extrapolates	**BDoE4. Acts on adult opinion**	**BDoE9. Enacts personal preference**	**BDoE3. Senses provide evidence for action**	**BDoE13. Applies Humean ‘reason’**	**BDoE14. BDoE =Research**
a) Applications of prior experience	**c) Social domains**	**d) Autonomy**	**e) Material contexts**	**f) Cognitive domains**	**h) Methodological issues**

YCAR Findings – examples from Phases II and III

Base Decisions on Evidence

What enquiries are important to young children and how can they engage in them?



BDoE7: Trial and error

Vignette 1: Gemma (G,5) and the Book Box

One day in Beech Setting, Gemma tidied the book box. She attempted to slide a book in sideways; it would not slide in to begin with so Gemma tried another way round – the book still would not go in so she tried another space. Gemma continued to try to fit books into the book box and if a book did not fit, she used that experience as a basis of evidence for trying to fit the book into the box in a different way.

Cognitive Domains

BDoE7: Trial and error

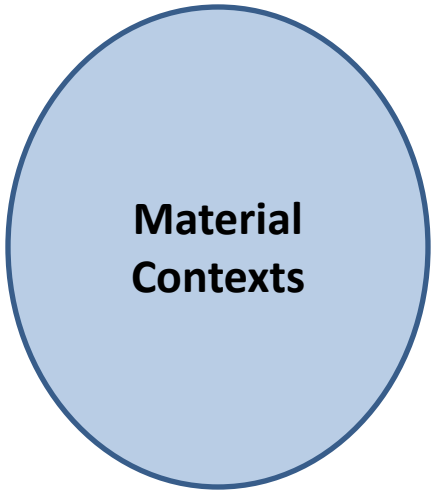
Vignette 1: Gemma (G,5) and the Book Box

- Cognitive functionings that led children to basing their decisions on evidence included trial and error-elimination (Hájíček, 2009; Popper, 1972).
- Gemma proposed 'new forms' of arranging the books and 'new hypotheses' about how she might fit books into the book box, moving onto the next 'form' and 'hypothesis' when she found one that did not work: error-elimination' (Popper, 1972)
- Gemma's behaviour is congruent with the schema:

$$P^1 > TS > EE > P^2$$

where 'P represents a problem, *TS* a trial solution applied to the problem, and *EE* stands for error-elimination' (Swann, 2009: 260).

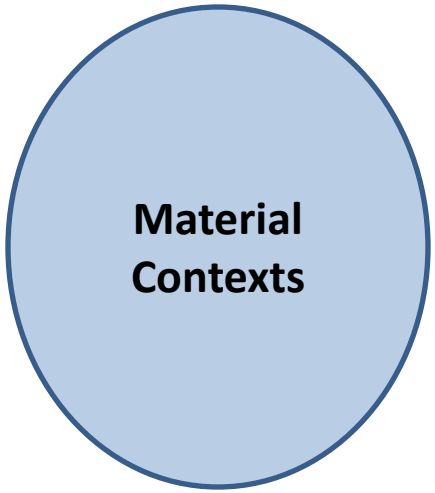
- Gemma chose new ways to tidy the books in response to outcomes from trialling and eliminating tidying methods that did not work (Tversky and Kahneman, 1981)



BDoE3. Senses provide evidence for action

Vignette 2: Pedro (B,5) examines the earth

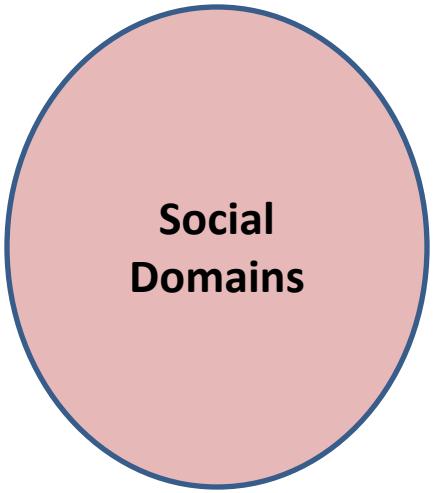
In Cherry Setting outdoor area during a morning free-flow play session, Pedro was sitting on a tricycle and leant over to pick up a clod of earth with grass. He looked at the earth clod in his hand then threw it onto a nearby earth mound. Pedro then pedalled the tricycle, before repeating the inspection and discarding process with another earth clod.



BDoE3. Senses provide evidence for action

Vignette 2: Pedro (B,5) examines the earth

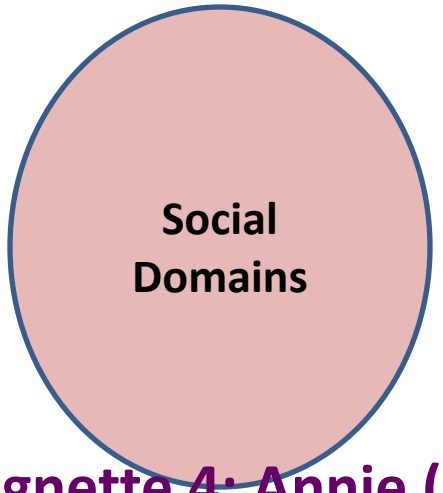
- **Adopting material contexts as a functioning, children often used their senses to provide evidence for deciding how to act**
- **Pedro used his sight to inspect the earth clods then used the data he gathered from that inspection to decide to throw the earth clods onto the earth mound**
- **Pedro transformed his perception into action; during each incident, Pedro's decision to discard the earth clods was contingent on his initial act of inspecting them by sight (Tversky and Kahneman, 1981)**



BDoE2. Valuing peers' perspectives

Vignette 4: Annie (G,8) and the Spider

During a whole class art session one afternoon in Ash Setting, the children were tasked with making an undersea scene that had previously been modelled by Practitioner A. Nevertheless, Annie left her art work to join a group of eight children who had found something behind the class bookcase: a spider



BDoE2. Valuing peers' perspectives

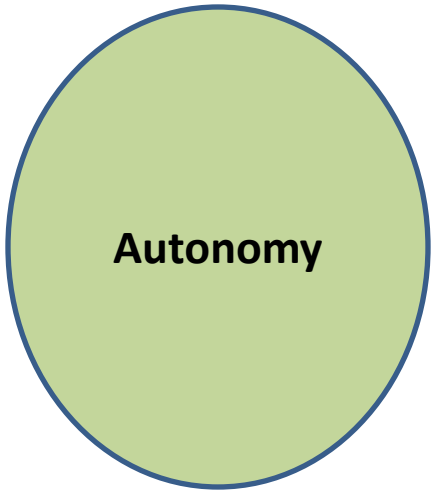
Vignette 4: Annie (G, 8) and the Spider

Annie and her peers rejected the adult's attempt to guide them '… into being competent users of the cultural tools of their society' (Anning and Edwards 2010:14)

Annie valued her peers' view that the spider behind the bookcase was more interesting than the teacher task

Annie's response to peers' social cues exhibited social referencing: a skill that develops in the first year (Campos and Sternberg, 1981; Striano and Rochat, 2000)

Children develop and maintain their own cultures, rejecting adults' plans for them (Smidt, 2006; Löfdahl and Hägglund, 2006; Markström and Halldén, 2009)



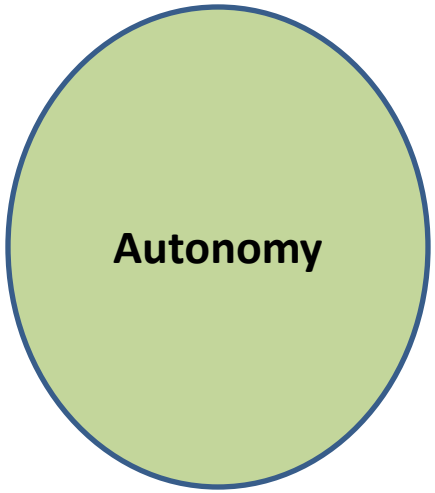
BDoE9. Enacts personal preference

Vignette 4: Oscar (B, 5) and the tube

During free-flow play in Cherry Setting's undercover outdoor area, Oscar held a toy elephant at one end of a plastic drainpipe and asked children at other end of the tube to see what was there.

Subsequently, Oscar watched the other children playing with the tube.

Then Oscar returned to the play with a toy zebra.



BDoE9. Enacts personal preference

Vignette 4: Oscar (B, 5) and the tube

Oscar‘s preference for playing with his peers seemed guided by both cognitive and emotional needs to engage with others (Johnson-Laird and Shafir, 1993).

Oscar’s play was ‘goal-directed behaviour in the presence of options’ (Hansson, 2005:6)

His decision to resume playing was contingent on his observation of this peers combined with rational thinking: behaviour congruent with decision theory (Tversky and Kahneman, 1981).

Conclusions 1

- How do young children construct knowledge by basing their decisions on evidence?

				BDoE5. Meta-cognition	
BDoE1. Applies prior experience				BDoE7. Trial and error	BDoE11. Methodological issue
BDoE6. Applies mental model	BDoE2. Values peer perspectives			BDoE8. Thinks strategically	BDoE12. Sampling issue
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a) Applications of prior experience	c) Social domains	d) Autonomy	e) Material contexts	f) Cognitive domains	h) Methodological issues

- Can revealing young children as agents who make decisions based on evidence promote social justice?

Conclusions 2

1) **Did the study establish the nature of research?** **Yes – a taxonomy of research behaviours with four prime research behaviours**
2) **Did the study establish young children as researchers? Yes – A 'valid deduction yields a conclusion that must be true given that its premises are true' (Johnson-Laird and Byrne, 1991:2). The study's triangulated data provided confidence that the premises were 'true' so it can be argued that participating young children engaged in research**

Young Children as Researchers	
The research behaviour framework (RBF) is populated with behaviours that academy members identified as research.	*(Major premise)*
Children engaged in behaviours on the RBF.	*(Minor premise)*
Children engaged in research.	(*Conclusion*)

Conclusions 3

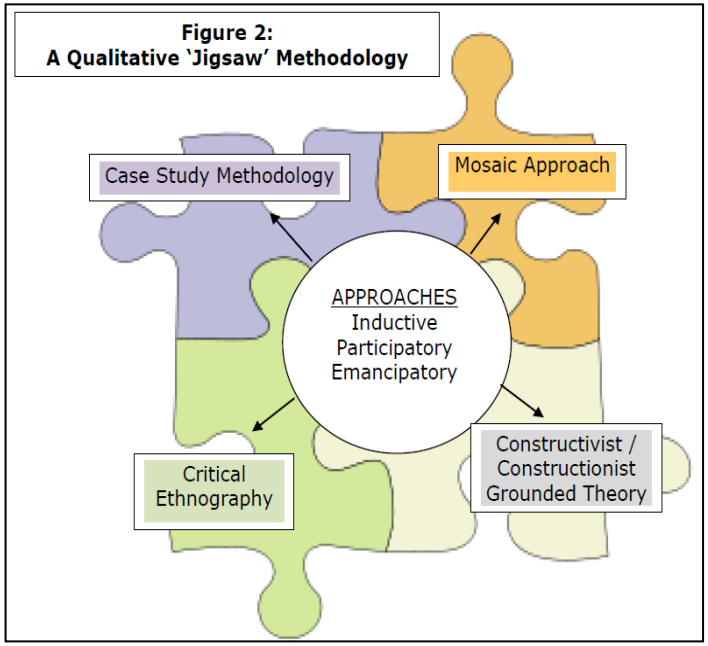
3) Did the study establish what enquiries were important to young children and how they engaged in them? Yes – participating children engaged in hundreds of enquiries across the four prime research behaviours (as well as the other 35 research behaviours)

4) Did the study establish what supported or prevented the children's participation in those enquiries? Yes ...

Conclusions 4

5) How can a study be conducted to establish young children as researchers?

- **Maintain value orientation by…**
- **Matching form and function**
- **Making methodology fit for purpose...**



Phase 1 Methods with PEYERs	Survey	Interviews	Focus Group

Phases II and III Multi-modal Methods (Clark and Moss, 2011)	Documents	Interview conversations
Observations	Focus Groups	Informal discussions
Field notes	Children's artefacts	Photographs
Video recordings	Audio recordings	Research Behaviour Framework (RBF) Analysis Sheets

Was the YCAR aim achieved?

- **Aim:** To conceptualise ways in which young children aged 4-8 years are researchers, could develop as researchers and may be considered to be researchers

What do you think?

Read more about the YCAR Study...

Murray, J. (2011) Knock, Knock! Who's There? Gaining Access to Young Children as Researchers: A critical review. *Educate~* **11** (1): 91-109. [Online] Available at: http://www.educatejournal.org/index.php/educate/article/view/285/252 Accessed: 5.5.13

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Any questions?

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