Observing and understanding two-year-old children’s decision-making in dialogue

**EECERA 250 word abstract (already submitted and accepted through the conference paper submission system)**

This presentation draws on the findings of a doctoral thesis about how two-year-old children make decisions in dialogue. It considers the most relevant others involved and how children may have a dialogical relational regard for others rather than an instrumental attitude. One of the three case studies in the thesis builds on the ‘Being in Relation’ project at Pen Green Centre for Children and their Families (Lawrence, Howe, Howe, and Marley 2014), which considered children’s intentions and relations. It is also informed by previous dialogical project work with places and materials in Reggio Emilia (Reggio Children 2007). The research is underpinned by a dialogical meta-theoretical framework (Linell 2009) encompassing multi-modality and embodiment to value the non-verbal communication and meaning-making important in the understanding of younger children. The children’s experiences are phenomenologically, contextually, and socially co-constructed by parents, educators, children and the researcher in dialogue in a participatory interpretative approach. Multi-modal interaction video analysis of critical episodes of decision-making privileges attention to the children’s expressions and responses. The ethical relationships in the research value multiple perspectives (EECERA 2015) and the voices of the participants in dialogue. The study presents a theoretical perspective to understand the most relevant others involved in the children’s dialogue. The findings suggest a dialogical approach to interpreting how these two-year-old children make decisions with dialogical agency. Parent and educators’ perceptions of children’s decisions made with dialogical agency may be shared and refined leading particularly to higher literacy and understanding in non-verbal interactions in practice.

**Keywords:** dialogue, agency, decisions, two-year-olds, interpretation
Observing and understanding two-year-old children’s decision-making in dialogue

This account sets out:
1. The focus of the research
2. The purpose and aims of the research
3. The reason for the choice of methodology
4. How ethical issues are addressed
5. The process of the research and how it impacted on practice
6. A reflection on its contribution to practice
7. Any further plans for development

1. The focus of the research

The research focus was to understand the dialogical processes of both the children’s decision-making and the interpretation of it. The initial difficulty was about knowing when there was dialogue rather than instrumental regard. For Duranti (2010) the role of theory here is to decide ‘whether we should distinguish among different ways or levels of being together. The empirical issue is whether we can distinguish’ (13) (author’s emphasis). I am asserting that one should try to discern the qualities of relating with the other. This Dialogical Observation Approach is not only methodological, it is also epistemological. The approach presents dialogue within a broadened theoretical perspective. It generates ideas for interpreting and understanding decisions made with dialogical agency in these circumstances of uncertainty.

2. The purpose and aims of the research

This account documents a ‘Dialogical Observation Approach’ (Lawrence 2017a, 2017b and 2017c). The aim is the same as the doctoral thesis¹ (Lawrence 2017d) on which it is based, namely to understand decision-making in dialogue. Parents and practitioners, the adults closest to three children, engaged with them in participatory video analysis. I define the Dialogical Observation Approach as a focus on how participation takes place. It pays attention to the potential relation of participants as they perceive, communicate and construct meaning. This applies to

¹ Completed March 2017

This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.
the participants within the interaction and within the interpretation afterwards. For the purposes of this study decisions made with dialogical agency are understood to be action-orientated choices from available courses of action (Iannone 2001). The child could have done otherwise. In current usage (Sairanen and Kumpulainen 2014) agency indicates acting deliberately making free choices. Dialogue is not *dia*-defined or limited as two, but as ‘through’ or ‘by’ logos, that is in knowledge and discourse (Linell 2009, 4) with the other. The term *dialogical agency* indicates an existential nature, *being* in relation with the other when choosing, not only thinking and taking action.

Buber’s (1970) view that one is ‘lonely with’ (84) dialogue, or his term *I-You* relations, would preclude interpretation of this process in-between the poles of *I* and *You*. Decision-making is largely an internal process. Moreover, any expression in non-verbal communication is particularly important for two-year-olds and yet they inhabit a world with low non-verbal literacy (Nyland 2009). In this study phenomenology aims to access the meaning of the lived experience, and multimodality to access the expression of meaning. They combine in the Dialogical Observation Approach to broaden Buber’s ontology within a dialogical meta-theoretical framework (Linell 2009).

The motivation for this project comes from my work in two locations at the vanguard of early childhood education: the Pen Green Centre for Children and their Families, in Corby, UK; and the municipal infant-toddler centres of Reggio Emilia, Italy. Both are concerned with participation, and how knowledge is constructed. The research with parents at Pen Green for one of the case studies in this study, has been reported in Lawrence, Howe, Howe and Marley (2014 and 2017). In Reggio the children’s dialogical relations with each other, the environment, community and culture constitute the meaning-making as well as the context for their learning.

The purpose of the research is also rooted in its UK context. There has been a marked increase in two-year-old children in professional settings in recent years.
The likelihood is that more practitioners will be working with two-year-olds for the first time. The expansion raises many considerations about the appropriateness of the provision particularly in terms of relational pedagogy (Dalli et al. 2011). Calls for relevant continuing professional development (Georgeson, Campbell-Barr and Mathers 2015) aim to keep pace with the rate of change in children’s provision. The development of understanding in this study has significance for underpinning relational pedagogy that has a strengthening presence in early childhood (Malaguzzi 1993; Edwards 2007; Graham and Fitzgerald 2010; Dalli et al. 2011; Veck 2013; Matusov and Miyazaki 2014; Carter and Nutbrown 2016; White 2016). This is the potential contribution to the field.

3. The reason for the choice of methodology and 5. The process of the research

Awareness of potential relations with the other is the key to this approach. The methodology situated the observers in potential relation with the children (Reddy 2008; Angrosino and Rosenberg 2011). Three two-year-old children were the foci for case studies considering their experiences in their real-world contexts (Yin 2014). The research was designed to stay close to the flow of lived embodied experience of the children (Angrosino 2007).

**Participatory approach**

The participatory nature of the approach valued the knowledge situated within the child’s community (Malaguzzi 1986; EECERA 2015). It rendered the methodology also ‘an epistemology and an attitude’ (Krai 2014, 148) to research with people not on them (Schwandt 2000; Heron and Reason 2001). Interpreting with others rose to the challenge of Dahlberg and Dahlberg (2003), ‘*that we don’t make definite what is indefinite*’ (44) (authors’s emphasis), but slow down interpretation (48). The approach of this study was not to stop at the first interpretation that inevitably occurred (Kress 2012) since interpretation may be reflex (Gallese 2003). It was important to maintain open expectations (Schwandt 1999). Participants’ understanding was knowing and not knowing (McManus-Holroyd 2007) while
engaging in the dialogue. Knowledge from home was shared by involving parents’
expertise in the form of their personal theories in a ‘developmental partnership’
(Easen, Kendall and Shaw 1992). The expectation was that the participants would
bring multiple perspectives (EECERA 2015, 3). The interpretation was itself,
‘dialoging with alternative interpretations’ (Gillespie and Cornish 2010, 39) through
awareness of, or attention to (Ingold 2017) the other interpreters.

Participants
The participants were three families with children of two years of age, Oscar in one
setting, Tia and Henry in another setting, and the key worker practitioners for the
children. They agreed to participate after due consideration that the time
commitment involved would be manageable (BERA 2011). The role of participants
was sustained all the way through to dissemination (Lawrence et al. 2014, and
2017). In addition to my own research questions the participants each brought individual
and complementary research interests to the study and that influenced the selection
of episodes and the analysis. They are set out in Table 1.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hannah, Oscar’s mother</td>
<td>was interested in seeing ways in which Oscar communicated with other children of his age.</td>
</tr>
<tr>
<td>Darren, Oscar’s father</td>
<td>was interested in seeing how Oscar dealt with sharing with children his age and sharing the adult’s attention.</td>
</tr>
<tr>
<td>Sarah, Oscar’s Family Worker [Key Person]</td>
<td>focused on interactions where the children had very different intentions from each other and the strategies he used to engage others.</td>
</tr>
<tr>
<td>Anne, Tia’s mother</td>
<td>was interested in seeing ways in which Tia socialised with English as an additional language to the Dutch language she used extensively at home.</td>
</tr>
<tr>
<td>Rachel, Henry’s mother</td>
<td>was interested seeing more of what Henry did in the setting where she felt he was very settled.</td>
</tr>
<tr>
<td>Jo, Tia and Henry’s Key Person</td>
<td>was interested in the role of perception of the children’s experiences.</td>
</tr>
</tbody>
</table>

Table 1. Participants’ research interests.

2 All children’s names have been changed.

This paper may be used for research, teaching and private study purposes ONLY.
Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-
licensing, systematic supply or distribution in any form to anyone is expressly
forbidden.
The observations: Mutuality in visual analysis

The camera position during the recording of the observation aimed to generate Goldman’s shareable presence (2007). The video observations were recorded by myself, the family, and practitioner. They took place within a minimum period of two hours, twice a month over a period ranging from four months to 20 months. We met after each recording session to select episodes. Forty-three episodes were selected for interpretation in further meetings together.

While participants have had a sense of ownership of their projects before (Haw and Hadfield 2011), in this study the use of video was a methodological commitment to the potential for reciprocity. The approach resonates with Angrosino and Mays de Pérez’s (2000) recommendation to shift away from thinking of observation strictly as a method for data collection towards also seeing observation as a context for interacting with those involved in the research, a dialogical context. Heath, Hindmarsh and Luff (2010, 92) also advocate visual methods for a ‘mutual encounter’. Shared viewing of video echoes Merleau-Ponty’s (2012) co-presence here and is also suited to diffraction (Barad 2007; Iedema 2014).

![Diagram of the cycles of participatory visual analysis]

Figure 1. The cycles of participatory visual analysis

This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.
Collier (2001) provided a process of contextualised visual analysis in cycles (see Figure 1). The first open viewing cycle was followed by a structured detailed multimodal analysis (Norris 2004) of the children’s expressions and responses (Chalmers 1996), and then a return to an open viewing for evaluation. In the initial open viewing the episode was played without stopping for the whole experience of the episode of typically three minutes duration. The parent of each child led the discussion. As researcher my role was not to synthesise but to represent it authentically and then verify everyone’s intended meaning. Critical sequences, typically fifteen seconds long, were identified for the second cycle. I made a detailed multimodal interaction analysis transcript, and our next interpretative dialogue was based on this. Thirdly, we viewed the entire episode to see the details in context. Each cycle illuminated the others (Smith, Flowers and Larkin 2009, 104). The whole made the detail relevant (Merleau-Ponty 2012).

The participants accessed transcription (see Figure 2.) from software called ELAN (Max Planck 2012) that allowed for video to run alongside annotations for each child and for each mode in real time, in slow motion, or still frames.

![Figure 2. ELAN transcription](image)
The thematic analysis followed steps of a phenomenological method, contextual imaginative variation (after Giorgi and Giorgi 2003). It identified constituents of decisions made with dialogical agency and retained the participants’ phrasing and meanings. Here was a significant difference to Giorgi and Giorgi (2003) who would have sought to eliminate the voices of participants. Through closeness to the children’s expressed experience and to what the participants had recognised the study aimed for vividness and accuracy that can, according to Polkinghorne (1983), indicate the trustworthiness of phenomenological interpretation.

4. How ethical issues are addressed
In researching with participants a fundamental question about relating to each other is encapsulated by Schwandt as ‘How should I be toward these people I am studying?’ (2000, 203). Travelling together in a participatory way is an established relation (Kvale 1996; Heron and Reason 2001; Haw and Hadfield 2011). In Schwandt’s (2000) view Buber would go even further into knowing in relation, in direct I-You relation with participants. The Dialogical Observation Approach acknowledges the potential for such relations.

The research relationships in this study can be seen in terms of reactive attitudes, defined as, ‘Human reactions to the treatment of people as displayed in attitudes and actions’ (Strawson 1962, 220). For example a practitioner may consider how one family’s response to a video episode may affect another family. To be clear, the main and over-riding responsibility for the conduct of the study was my responsibility. However, we were developing judgment not only in our interpretations, but also in how we conducted our ethical relationships. Eshleman (2014) sources these reactive attitudes in principles within practice. I argue they may arise within research as relations between people in an ethical space for sharing values. It may engage ‘a particular attitude that leaves open the possibility for ethical reflection’ (Ramaekers and Suissa 2011, 98), rather than an intervention to instruct parents or for them to feel they ought to develop expert knowledge. Leading the research I was mindful of our diverse roles and knowledge bases. I did not assume nor intend that parents and...
practitioners were or ought to become the same. The ethics of this study were part of our interpersonal mutual relationships and came to belong to all the participants. This paper represents only the relations in these cases, but of course there could be more difficulties, other resolutions and relationships associated with these questions in other settings.

Power, belonging and ownership – The use of technology in the form of video and software could have ramifications (Angrosino and Rosenberg 2011). It would have created an ethical power differential with the participants unless they had access and control. In fact these participants were skilled at recording, selecting and communicating. On a continuum of involvement (Robson and Smedley 1996; Payler 2016) the participants were highly involved in making decisions and dissemination.

The dissemination involving images of children requires on-going consent and assent from the children. The research was conducted according to the ethical governance of The University of Winchester, and guidelines of Pen Green, BERA (2011) and EECERA (2015). The anonymity of the children, confidentiality of the participants and data, the right to withdraw and above all the process assent of the children (Flewitt 2005; Dockett et al. 2009) as well as the consent of adults were respected.

5. How the research impacted on practice and 6. Reflection on the implications for practice

The main link between this research and practice is the demonstration of the theoretical underpinning enacted in the Dialogical Observation Approach. The important ontological and epistemological view is that the children may make decisions to be in dialogue with their world as well as being part of it. It matters how we conceptualise dialogical processes so that they may be recognised and valued. Participants also continue understanding in their ongoing experience and practice. In this section I summarise findings on how the children made decisions with dialogical agency in these cases. I then present the participants’ understanding.
developed during the study.

In terms of the children’s decisions, the main finding is the move into, and the maintenance of *I-You* relations interpreted by the research group. In addition we recognised the potential for the extension of dialogue with other potential protagonists: objects; environment; and those from prior experience, cultural or imagined. Table 2. indicates some of the connections between constituents of decisions made through dialogical agency.

| 1) **Openness** - as a pre-condition for mutuality/inter-subjectivity. **Attention** to the other and **effort** were a part of openness.  
| 2) **Mutuality** – occurred when there was a transition from *I-It* into *I-You* relations. **Attention** to the other maintained mutuality and this occurred sometimes through the child exerting some **effort**. **Attention** and **effort** also demonstrated agency because the focus child was aware of alternatives that s/he could have chosen otherwise. Potential to change was characterised by spontaneity and improvisation when it was enacted. It was also the possibility to change or to remain with a course of action and was part of the response to the other. Sometimes *I-You* formed the over-arching relation, a relational flow, within which there were *I-It* attitudes. Sometimes there was an overtone to the episode such as humour.  
| 3) **Extending the dialogue in the world** – to include additional others as well as the other child such as the observer or any of the following:  
| **Space** – a decision made in dialogue with space or the environment itself.  
| **Movement** –a decision made in dialogue with movement itself.  
| **Sound** –a decision made in dialogue with sound itself.  
| **Objects, materials and the environment** –a decision made in dialogue with objects, materials, and/or the environment themselves.  
| **Non-present others**– may encompass a decision in dialogue a non-present human, environment, object, or cultural reference. |

Table 2. Summary of constituents of decisions made with dialogical agency in the case study episodes

To present the development of the participants’ understanding through dialogue I begin by looking at on-going understanding in mutuality. I then discuss the role of refined perception and indefinite interpretation.

**On-going understanding in mutuality**

As parents, practitioners and researcher, we shared the responsibility for the analysis.

This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.
Sarah: *Every step along the way you [Penny] always said this is about all of us...*

Hannah: ...*Like you really have valued it rather than it just being done because you feel you have to.*

Sarah: *We’ve felt like you wanted it [the input].*

A state of mutuality was manifest in the ethical regard the participants held for each other (Strawson 1962). Mutuality was initiated and maintained with openness (Duranti 2010) to the other’s experiences and meanings in the on-going process. The researcher did not lead the dialogue.

Sarah: *You [Penny] facilitated it and made it happen in terms of us meeting and having the video prepared. In terms of the discussions I don’t think you even spoke at the beginning of it. You’d play the video and wait for us ...*

Hannah: *Wait for us to see what we’d pick up from it.*

Darren: *I felt it was good that Penny let us watch the footage and pick out bits to focus on first before sharing what she noticed or thought.*

The children also made interpretations allowing for the other’s experience in a meta-metaperspective (Gillespie and Cornish 2010) demonstrating the involvement of children in this Dialogical Observation Approach.

The concepts to interpret multi-modal interactions were absorbed and readily employed.

Hannah: *Being able to watch Oscar’s clips makes me think more about the ways Oscar communicates non-verbally than I would ever normally notice [...] it’s always something you’ll be able to use in day to day life, the more aware you are. [...] It builds on your knowledge.*

Sarah: *Having the language to have the discussion about it.*

Hannah and Sarah’s comments are significant because they indicated awareness of how knowledge applied and built further understanding between them (Schwandt 1999). Participation as researchers (Boylorn 2008) extended the pre-existing relationships.
Darren: I feel like we have got closer to Penny and Sarah as we worked together on the project. I felt like I could be open and honest without feeling silly.

Sarah: Research really did strengthen our relationship, it did. The conversations were very different.

Hannah: There were small parts in a long conversation. So instead of ‘look at Oscar, he was doing this’, we were actually breaking it down side by side. You’re having those deeper conversations. Having the time to go deeper, it opens up conversation that we wouldn’t have had if the research project wasn’t going on.

We moved back and forth in-between the layers of the children’s meaning-making in the interaction, and the interpreters perspectives, in correspondence (Ingold 2017) in-between our own and each other’s continuing experiences. Changes in perception are set out next.

**Refined perception and indefinite interpretation**

The approach allowed for dynamic shifts in perception. For example, Hannah recognised Oscar’s exaggerated expression, ‘I think I’m like that with him sometimes too. I wouldn’t have said I noticed that before’. There were instances of Iedema’s (2014) diffractive transformation in discussion seeing back across the participants’ pre-existing knowledge and perceiving it anew.

There was a deepened discussion between participants such as that about Oscar’s lived dialogical experience.

Sarah: Before we may have touched on things like relationships he was developing with other children.

Hannah: or interests

Sarah: … yeah, but not necessarily the cues for how he interacts with others, I don’t think we’d have spoken about that.

Hannah: and the interpersonal skills that he’s using.

The research revealed to Sarah a high level of thoughtfulness, subtlety and skill in the children’s multi-modal communication. She evaluated her own research interest in different agendas held by children in terms of principles for future practice: to allow for child-child dialogue, and the innovation of the extension of dialogue.
Sarah’s understanding led her to value maintaining embodied and responsive relation with the children through her own body and facial expressions.

For Jo, the other practitioner, the dialogue opened up the process of interpretation.

Jo: It’s our knowledge of our experiences in the world that influence our perception of it. This may colour our interpretation of other people’s perceptions.

Jo was interpreting how we interpreted our own and each other’s perceptions. She has become more aware of the children’s dialogical agency and her own interpretative processes.

Jo: I was already aware of how I perceive things. I’m more aware of representing how I’m interpreting how children make decisions by discussing all of this.

As a result of the dialogue, Jo in particular was considering tiers of perception and interpretation (Schwandt 2000), and she was more aware of how she represented this. The layers of awareness are in set out in Figure 3.

If interpretation is viewed as a skill, it may be made with increasingly refined perceptions (Goodwin 1994; Dreyfus 1996; Merleau Ponty 2012). We valued bringing together these multiple perspectives in more collective reflective communication (Fichtner 1984; EECERA 2015) beyond the individual first interpretation.

Sarah: I think it helped me to become a lot more in tune with Oscar. I could watch it really closely with you [Hannah] and see how you were with him at home and how adults and children were with him in the
When we were doing the open views, when we were watching the video for the first time, you [Hannah] would maybe say, ‘Oh I think he was trying to do that’ and I’d say, “Do you know I really think he was trying to do that’.

Hannah: You wouldn’t have thought about it quite so much without having everybody else’s interpretation. It’s not I’m right and you’re wrong, it’s ‘Oh well he could be doing this and he could be doing that’.

[...] Having someone else’s perspective – seeing that three to four people can have completely different interpretations.

A longer phase of non-synthesised indefinite interpretation (Dahlberg and Dahlberg 2003) may not be problematic if each person’s understanding is accepted as his or her own. Entering into the in-between space, with understanding that is ‘becoming’ can counter the risk of refined perception becoming too entrenched in a single narrow way of viewing. Of course people may seek affirmation and confirmation in early consensus, but the Dialogical Observation Approach does provide for less rigid responsive processes. The potential to acknowledge the type of relation has implications in particular for the enactment of understanding in the flow of relational pedagogy.

The Dialogical Observation Approach is not quotidiant. It is innovative and challenging. Phenomenological and multi-modal literacy, involving detailed interaction analysis, would be too onerous within the usual observation, planning and assessment cycle in the English Early Years Foundation Stage. However, initial training and continuing professional development involving parents would lay foundations for professional vision, judgment and agency (Goodwin 1994; Coles 2002; Edwards 2007). Even dialogue about one episode would provide experience of the approach. The enactment of understanding will be on-going in-between practitioners, parents, children, the learning environment and local setting culture. Once practitioners have had the opportunity to concentrate then practice is the ideal place to develop this thinking, not in critique separate from the world (Olsson 2009, 52). It is difficult to develop awareness of dialogical agency without being part of dialogical practice with colleagues as in Reggio Emilia (Rubizzi 2001). Practitioners
need to construct it with colleagues and parents, reach out for dialogue in their local area, and through early years organisations.
7. Any further plans for development

In my Viva my examiners, advised me to make more of the theoretical development proposed in the thesis and to make a claim for the approach to observation. In addition to the discussions at EECERA 2017 further plans for the Dialogical Observation Approach need dialogue. This is with interested practitioners and academics to consider integration into undergraduate, post-graduate and continuing professional development. The approach needs to be manageable and engaging for participants. One direction for future research would be the understanding of surprise (Buber 1970), and responses that might occur in dialogical decision-making.

To these ends discussions are taking place with a range of known and new collaborators:
- Colleagues in the Early Childhood Research Centre, The University of Roehampton, UK.
- Former colleagues in the Early Years Education Research Centre, University of Winchester, UK.
- Former colleagues at Pen Green Research Centre, UK.
- Former colleagues in Reggio Emilia, Italy and new contacts at the University of Modena and Reggio Emilia.
- London ReFocus Network, part of Sightlines Initiatives, including practitioners, atelieristas and pedagogistas;

My thinking and communicating about the research is also in written outputs. In addition to writing with parents already published (Lawrence et al. 2017) I have written papers based on this research to be read in advance and discussed at the Oxford Ethnography and Education Conference (September 2017), the ‘From the Margins’ New Researchers in Philosophy of Education Seminar Belfast (October 2017), and in a REF writing retreat at Madingley Hall, Cambridge, (March 2018).

3896 words
References


This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.
Penny Lawrence - EECERA Student Research Award 2017 – Highly Commended


This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sublicensing, systematic supply or distribution in any form to anyone is expressly forbidden.


Lawrence, P. 2017a. Observing and Interpreting the 100 Languages of Children in Dialogue with the World Presentation at ReFocus Open Meeting, 15th June 2017 continued at Sightlines Initiative Reflections Discussion Meeting Institute of Education/UCL London 27th June 2017.


Lawrence, P. 2017c. ‘From the margins’ Philosophy of Education Society of Great Britain New Researchers in Philosophy of Education (NRiPoE) Seminar 6th – 8th October 2017, Queens University, Belfast.


Malaguzzi, L. 1993. For an Education Based on Relationships Young Children 11: 10.


This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sublicensing, systematic supply or distribution in any form to anyone is expressly forbidden.
Penny Lawrence - EECERA Student Research Award 2017 – Highly Commended


This paper may be used for research, teaching and private study purposes ONLY. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.