

Final Report Open Call Research Grant, Listening-2: Investigating sensory-motor learning in two-year olds, Maggie MacLure and Christina Macrae, Manchester Metropolitan University

Overview

The Listening-2 project brings Froebelian philosophy into conversation with a materially-informed pedagogy that is attentive to 2-year olds' sensory and affective ways of knowing. At the heart of the project is an innovative slow-motion, video-based methodology that invited parents and practitioners as co-researchers where 'listening' is understood as an expanded attentiveness, not simply to words, but crucially, to movement, sound and gesture.

Objectives:

The research aimed to mobilise Froebelian concepts and principles in order to:

- develop a materially-informed pedagogy that is attentive to 2-year-olds' affective and sensory ways of knowing;
- investigate the potential of slow-motion filming as a methodology that foregrounds intuition and sensory forms of knowledge formation;
- reconceptualise parental involvement in terms of relations of attunement rather than deficit;
- develop new modes of research co-production based on collective practices of active listening and expanded attentiveness to data;
- strengthen the theoretical base of early childhood research and reassert the significance of Froebel's legacy for contemporary inquiry into the material and sensory dimensions of childhood.

'Listening-2' built on strong, well-established relationships within a nursery setting. It explicitly engaged parents and early years practitioners as researcher-collaborators in a diverse, inner-city Children's Centre in Manchester. Based in a funded nursery class for 2-year-olds, it used an innovative method of tuning into to 2-year-olds, where slow-motion film clips were employed as an expanded form of "listening" to children's "self-activity". The videos were taken in both the context of children's nursery environments, and in the context of their home lives. This co-produced ethnography, drew on Froebelian philosophy to value parents' lived knowledge of their own children, while also engaging with Froebel's idea that there is something unique about the ways that young children engage with the world.

Outlining achievements over period

Overall, the project was successful in recruiting participants, collecting data and trialing an innovative methodology to support adults in attuning to children's sensory motor activity. It proved possible, as anticipated, to mobilise Froebel's concepts to inform the theoretical underpinning for this work. The project objectives were unchanged, and have been largely fulfilled, with the exception of the objective concerning new modes of co-production which has only partially been met due to the COVID-19 pandemic.

Changes due to the COVID-19 pandemic:

The effects of the pandemic were very challenging for this inner-city nursery and the community it serves; at various times it found itself at the centre of surges and variant spread. The nursery community was itself touched by illness and loss. Settings such as this one found themselves at the frontline of family support services and were (and still are) responding to the complex needs of families in this unprecedented situation. Staff had to prioritise maintaining these services. This meant that our intention to work collectively with parents and practitioners at the end of the project in the analysis and selection of some key clips was not possible. However, during the first lockdown and beyond, several parents and practitioners continued to show a lively interest, not only in providing data for the research, but in becoming more centrally involved in analysing and the writing about the research. While we had to abandon collective discussions and reflection on the data, we were able to continue conversations and data sharing by e-mail with 3 parents and the room leader. We decided to take responsibility for selecting clips and producing a short accessible resource for practitioners. This will however be informed by feedback from practitioners and parents. Work on compiling this resource will be completed beyond the end-point of the grant. It will be made available on the MMU website, so that it can be accessed by early years practitioners as well as researchers. It will also be available for the school as a future resource for professional development.

By seeking a no-cost extension of 7 months to the end-date we were able to slow the research right down and keep the lines of communication open with a handful of parents and staff.

Other pandemic-related changes:

We did not use the community centre as a space to film exchange and dialogue. However, the school corridor unexpectedly became a productive, informal space (see below).

The use of project Go-pros for documentation was cut short by the pandemic. However, several parents preferred to use their own phones and were able to put films onto project USBs and exchange these or to send them digitally.

The planned dissemination events for local families and Greater Manchester early years settings had to be cancelled, to be replaced by the resource detailed above.

We abandoned idea of co-writing a paper with practitioner and parents to be presented at ECEERA/BERA, instead Christina will present a paper at ECEERA.

Research Undertaken

The project was located in a 2-year-old classroom in inner-city Manchester at Martenscroft Nursery School and Children's Centre. Field visits ceased in March 2020 due to lockdown, although contact with the setting and some parents was maintained.

Recruitment and data collection:

Parents, staff and children were invited to take films where children were engaged in everyday domestic or play activities. 21 parents consented to their child being filmed in the nursery and were invited to contribute films to the project. Of these 5 contributed videos taken either at home or when out and about by the time we had to cease field trips to the nursery. There were parents who had been interested in contributing but had not yet started to take film clips when the pandemic halted the face-to-face field visits. Only those parents who had already started to contribute film continued to stay in touch remotely.

Video methodology and analysis:

52 clips were made by the five contributing parents, plus 5 still photos taken by a parent of her child with light sensors, as the child jumps on different surfaces. An iterative consent process was used to ensure that only film clips that were consented for were added to the final archive held on the password-protected project computer. 30 hours (approx.) of Go-Pro recordings made in the school context were added to the archive. From November 2019 until March 2020, Christina spent one afternoon/morning every week in the classroom, and made fieldnotes at the end of these sessions. She also spent one afternoon/morning situated in the Nursery corridor where she was able to download film clips to the project computer, as well as chat to parents and exchange or view film clips with them as they dropped off their children.

The project focus was on the potential of creating slow-motion video, as a tactic for attending more closely to the sensory-motor aspects of children play encounters. Slow motion clips, together with clips at normal speed, were analysed in depth in order to identify salient features of children's sensory and embodied immersion in events. The analysis was guided by Froebel's key concepts of 'self-activity' and 'unfolding', in conjunction with contemporary theorists who share with Froebel a monist and more-than-human ontology, such as Deleuze and Massumi. This analysis led to the identification of 'motifs' or recurring sensory-motor refrains, examples of motifs include jumping.

Historically film has played a part in the scientific construction of child development, where it has been deployed as a method to map children's development as a linear progression from one stage to the next. This research demonstrates that by altering and experimenting with the speed and sound of video, it is possible to explore the challenge of engaging with the body in its state of movement, rather than for fixing it as a point in time. A fuller description of the video methodology and how this differed from conventional uses of video in classroom research, can be found in MacRae and MacLure (2021)

Conclusion

Overall, the research has succeeded in its aspiration to release "untapped potential in bringing Froebelian philosophy into conversation with a materially-informed pedagogy that is attentive to 2-year olds' sensory and affective ways of knowing". Watching slow-motion video data collectively with research participants produced a keener awareness of the dynamics of children's bodies moving responsively in relations to matter and space, foregrounding small thresholds of change and perceptible micro-movements. For example, a parent said that watching film in slow-motion made her slow down when she was with her daughter, and "pay more attention to the different shades and forms of movements Anna performs on a daily basis like jumping around, spinning or pretend playing". An early years practitioner explained: "Only when the video is in slow-motion - and even then I had to watch it again a few times - a little bit more detail was picked up and I noticed more about the in-the-moment connections children are making with the materials they are playing with." The video methodology, informed by contemporary theories of the material and more-than-human dimensions of events, has the capacity, we suggest, to materialise and to anchor Froebelian principles such as unfolding and attunement in the everyday interactions of adults and children.

Slow-motion video methodology offered an enhanced attentiveness to the sensory-motor dimensions of events. We developed the concept of "watching" as a way of engaging with children's

activities that was distinct from observational practices in both ethnography and early years education that privilege sight and centre the child in the visual field. Slow-motion watching focussed our attention on the dynamics of motion itself and the responsivity of moving bodies to things encountered. As we watched video-clips repeatedly, we became aware of how vision also taps into other senses such as touch and proprioception (both in the children's responses, but also offering a kinaesthetic receptiveness in ourselves as watchers). This idea is developed more fully in our paper [*Watching two-year olds jump: video method becomes 'haptic'*](#) (MacRae & MacLure, 2021), where the unfolding relationality at the heart of movement is highlighted: and where, as Froebel says, force and matter mutually condition each other.

The research elaborates the significance of the Froebel's concepts of unfoldment and self-activity, as noted above, by identifying resonances with contemporary new materialist thinking and concepts of emergence, self-organisation, materiality and relations with the physical world. This allowed us to reconceptualise the significance of imitation as a vital element in children's development. In our paper *Folding Froebel with Deleuze: rethinking the significance of imitation in early childhood*, we explore an immanent line in Froebel's thought, highlighting the immersive and self-transforming qualities of imitation events. This conceptualisation is distinct from Piaget, where imitation, is primarily given value as a cognitive stage of symbolic representation.

In conclusion, the research makes an original contribution firstly to video methodology in research involving children. Secondly, it begins to delineate the contours of a relational pedagogy for the early years, in which the 'asymmetries' of power of power and knowledge that structure interactions between adults and young children are tempered by a Froebelian sensitivity to children's distinctive modes of relating to the world, both human and physical. This is a pedagogy that takes its lead from children and their affective, curiosity-driven modes of relation. Finally, the research contributes to the theorising of children's development as emergent and non-linear: rather than following a broadly determinate path, development is understood as a matter of dynamic folding and unfolding of the child's inner life and external world. "It is the destiny and life-work of all things to unfold their essence" writes Froebel (1890, p. 2; see MacLure & MacRae, forthcoming). In summary, as stated in the proposal, the research has helped to "strengthen the theoretical base of early childhood research and reassert the significance of Froebel's legacy for contemporary inquiry into the material and sensory dimensions of childhood."

Personal Evaluation.

1. Co-production

a. The lockdown obliged us to rethink collaboration beyond face-to-face interaction, and to re-evaluate the potential of collaboration 'at a distance'. For instance, although borrowing the GoPros became impossible, parents were comfortable and skilled at using their own mobile phones to capture sensory-motor dimensions of their children's actions. This led us to be more thoughtful about the affective potential of different technologies, and ultimately granted some parents more of a stake in the research, as the technology was meaningfully embedded in the everyday realities of their lives. This not only yielded valid video data, but also encouraged some parents to become active data analysts. Two parents in particular began to document their children's activities and share their observations with Christina. Similarly, Christina's enforced absence from the nursery did not mean that staff participation ceased. The room leader continued to document and write about classroom events, and has derived significant professional satisfaction from this extended participation.

b. This continuing involvement by participants was only possible however because of sustained work by Christina to maintain contact while responding sensitively to the challenges that participants were facing. We conclude - perhaps counter-intuitively - that creative co-production may benefit from intensive and empathetic efforts to keep communication going, coupled with a certain 'distance' on the part of the researchers. This 'intimate distance' appears to keep open a space (see c. below) where parents and practitioners feel confident to mobilise their own expertise and creativity.

c. Creating a 'third space'. The space that allows participants to become active contributors to research through a kind of 'intimate distance', noted above, can be both a virtual-affective space, and a physical one. Informal spaces outside or adjacent to 'official' spaces such as classrooms, staffrooms or reception areas are fertile sites for engagement and unanticipated insights. We had envisaged that an off-site community centre might provide such a space. However, we found that the corridor outside the classroom provided, if anything, a more dynamic space where, among the familiar comings-and-goings, parents and practitioners engaged with Christina and with the video data.

2. Learning with and from Froebel

It might seem an obvious point, but we learned that intensive, in-depth engagement with Froebel's own writing, in the intellectual context of his time, was very generative in helping us to unfold its implications for contemporary early years research and practice. Becoming 'entangled' in the specificity and complexity of Froebel's work prevented us from making over-simplified parallels between his ideas and contemporary trends in ECE.

Ethical Issues.

The complexity of nursery life in a multi-ethnic, inner-city community, with a fluctuating intake and great diversity of home languages and cultures, kept ethical issues at the forefront of the research throughout its duration. Although some translation services were available, we spent considerable time on writing participant information and consent sheets that were simple and accessible - often bringing us into conflict with the institutional language demanded by the university's ethics processes. Christina also made herself available to talk parents through the ethics consent process. Ethical consent was also an iterative process: we returned to parents to confirm consent for recording and use of data at various points.

We also addressed ethical issues relating to the visual representation of young children. Our considered stance has been not to show children's faces in public-facing images. We are concerned about the pervasive use of children's animated and lovely faces for banal, commercial or ideological purposes, and feel that this betrays a quasi-colonial, or at best romantic view of children as unconsented subjects of adults' gaze. The decision to focus instead on feet, clothing, significant objects or bodies in arrested motion is in any case in keeping with the focus of the research on the vitality of sensory-motor action. We have also reconceptualised the power of written accounts of the complexity of sensory-motor events, recognising that, although there is of course a loss of visual information, the attempt to stay close to the minutiae of unfolding events brings a kind of immersive engagement that is not available via the distance involved in looking at an image.

As soon as the research was impacted by the pandemic, we were confronted by the ethical dilemma of trying to maintain our relationships and keep the threads of our research alive, while at the same time we were all too aware of the pressure that parents and staff were under. The no-cost extension helped us to mitigate this, as well as the flexible approach of the Trust. These factors helped us to

feel supported in making decisions that were, as much as possible, in the best interests of supporting the school and parents, albeit at a distance.

Implications:

ECE Practice.

The free, online, practitioner resource will help to inform practice in funded classes for 2-year-olds, both within the setting, and across the north Manchester nursery schools and classes that it supports as a training school. This resource will also be accessible nationally through the MMU Children and Childhood website as an online PDF. We envisage that it will be hyper-linked to the new 0-5 Matters Guidance being produced by the sector with Early Education, where it will provide a practice-facing resource for the section of Birth-3. The resource will also be used for teaching in Early Childhood studies at MMU, (it can also be used by other HE and FE early years training providers). The use of vignettes will make this an accessible way to both share findings, and also to propose that the use of vignettes and case-studies is a valid form of practice-based research and knowledge creation for ECE practitioners themselves.

The research expands on a dialogue about the relevance of schemas in young children's learning. This interpretation is aligned with Piaget, and it has tended to dominate schema theory in the early years literature. Our findings point to the contribution that Froebelian philosophy can make in opening up the current cognitivist interpretation of schema. By foregrounding Froebel's ideas of self-activity and unfoldment, this research recuperates the role of children's bodies through movement and the senses. The findings reassert the significance of Froebel's legacy for a contemporary inquiry into the material and sensory dimensions of childhood. This has implications about the role of the adult in relation to self-activity, and an attention to ways that adults might resist the urge to jump into children's play too soon.

The findings that arose from the Listening-2 data where children were imitating indicate the significance of improvisation. We suggest that the skills of performance artists are ones that should be included in training and through collaborative work in ECE settings to expand the gestural and embodied repertoires of ECE practitioners. As a starting point for such a development, the findings will feed into collaborations with performance artists currently under way in early years research at Manchester Met.

Visual research methods.

This project's generative use of slow-motion video as a deliberate attempt to complicate ocular conceptions of sight associated with ethnographic observation contributes to the field of qualitative research practice and the potential of experimental forms of videography in research related to young children. These are methodological insights that we intend to incorporate into the Faculty of Education post-graduate training seminars.

List of Publications:

MacRae, C. and MacLure, M. (2021) Watching two-year olds jump: video method becomes 'haptic'. *Ethnography and Education*, DOI: [10.1080/17457823.2021.1917439](https://doi.org/10.1080/17457823.2021.1917439)

Forthcoming:

MacLure, M and MacRae, C. (2021) Folding Froebel with Deleuze: rethinking the significance of imitation in early childhood. *Global Education Research*

MacRae, C. (forthcoming) Revisiting Froebel's concepts of self-activity and unfoldment in relation to schema theory. Chapter for Book: *Schemas in the Early Years: Exploring beneath the surface through observation and dialogue*. Editor: Cath Arnold. Taylor and Francis. [This chapter replaces the article on schemas envisaged in the proposal.]

Presentations and conferences:

MacRae, C. (2020) [Interview](#) with Kathy Brodie for Early Years TV

MacLure, M. and MacRae, C. (2020) [Exploring Froebel's idea of 'unfoldment' in two-year olds using slow motion video data](#), Froebel Webinar Seminar Series

MacRae, C. (2021) *Slow-motion watching: in and out of time*, Conference paper presented as part of a Symposium: 'Methodologies of the virtual: unsettling stable and progressive narratives of time in fieldwork'. The IX Conference on Childhood Studies, Tampere University, Finland

Forthcoming:

MacRae, C. (2021) *Listening-2: Investigating sensory-motor learning in two-year olds*, Conference paper to be presented as part of a Symposium: Revitalising early childhood education: The radical pedagogy of Froebel. Presenters: Dr Christina MacRae, Tansy Watts and Dr Nicola Kemp (Canterbury Christchurch University), Dr Joanne Josephidou (Open University) (2021), EECERA (European Early Childhood Education Research Association), Zagreb

Future Plans.

As a result of the interest generated through our connection with the Froebel Trust for this project, and our historic and ongoing collaborative relationship with Manchester Art Gallery Christina has become involved planning around play events over the year 2021-2022. Artist-led events for families and young children are planned in the outdoor space afforded both by the Manchester Art Gallery's Platt Fields site, as well as the Whitworth Park where the Whitworth Gallery is located. These will be an opportunity to showcase the Listening-2 practitioner resource (available online free of access). Christina is also planning to produce a short pamphlet about the History of the Nursery School movement in Manchester and its links to the legacy of Froebel.

Also, arising from the project, and the links built with the Trust, we have negotiated a collaborative PhD studentship jointly funded by Manchester Metropolitan University and the Froebel Trust, on the potential of Froebel's gifts in developing spatial thinking and number sense with 3-5 year olds. This project will allow us to continue to work closely and in collaboration with Martenscroft Nursery School and Children's Centre.