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ARTICLE

Aesthetic-ethical-political movements in professional learning: encounters with feminist new materialisms and Reggio Emilia in early childhood research

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ABSTRACT

Professional learning is considered essential for early childhood teachers, and is frequently associated with childhood outcomes and dominant constructs of quality which perpetuate neoliberal ideals and position early childhood teachers within a framework of rationality, privileging discourses of masculinity and power. By engaging with feminist new materialist perspectives, with the concept of 'movement', and with the theory-practice of the educational project of the city of Reggio Emilia, Italy, this paper extends understandings of professional learning to include nonhuman others as worthy interlocutors, and puts forth an invitation to welcome unease and an aesthetic-ethical-political stance in early childhood education. To complicate normative conceptions of professional learning, fragments from a project that used pedagogical documentation and dialogue to transform children's relations with waste are presented. These fragments elucidate how professional learning in early childhood education might be aesthetically-ethically-politically conceptually grounded and practiced. The conclusions presented are neither simple nor linear; rather invitations are offered to problematise, to avoid being satisfied with overt, dominant and linear constructs, and to welcome uncertainty in worldly relations.

Introduction

Professional learning is considered essential for early childhood teachers, and is frequently associated with childhood outcomes and dominant constructs of quality (Egert *et al.* 2018). Such influential perspectives assume a linear relationship between teacher learning, learning outcomes, and quality standards, perpetuating neoliberal ideals. That is, they emphasise markets, performance, outcomes, individualism, standardisation, accountability, and discourses of autonomy and choice (Apple 2001, Giroux 2013) while neglecting critiques of quality constructs (Dahlberg *et al.* 2013) and undermining possibilities for other ways to represent quality, such as through metaphor (Giamminuti 2013, Fenech *et al.* 2020). In addition, these dominant constructs position early childhood teachers within a framework of rationality that privileges discourses of masculinity and power (Osgood 2006), dismissing culturally and contextually relevant understandings of quality which can be 'fluid, subjective and value-laden' (Fenech *et al.* 2020, p. 203). As such, 'neoliberal discourse places an emphasis upon being rational above an ethic of care' (Osgood 2006, p. 8), while privileging values of accountability, measurability, and objectivity.

Such discourses drive seemingly unproblematic of professional learning that transport these values of rationality and simplicity into the realm of early childhood professional practice,

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undermining the fundamentally complex profession of early childhood educators. The neoliberal agenda positions early childhood educators as 'technicians or entrepreneurs' (Moss 2010, p. 10) whilst care and education have been hijacked by discourses of consumerism and economic investment (Press *et al.* 2018). The early childhood professional that is amenable to such contexts and values is an obedient and rational one who readily welcomes linear solutions to perceived problems of practice, as opposed to a thinking professional compelled to engage in active resistance (Fenech *et al.* 2010, Sims 2017). Sims (2017) laments the 'devastating impact' of neoliberalism on the early childhood sector, which has led to: a culture of compliance on the part of teachers; inward-looking educational leadership; a view of learners as employable consumers of the future; increasing surveillance; a policy discourse of marketability of education; and generalised acceptance of 'push-down curriculum'.

By engaging with feminist new materialist perspectives (Barad 2007, Lenz Taguchi 2010, Braidotti 2013, 2019), and with the theory-practice of the educational project of the city of Reggio Emilia, Italy (Rinaldi 2006, Edwards *et al.* 2012), we seek to distance ourselves from neoliberal constructs of rationality, compliance, and linearity. We recognise teachers and educational leaders as thinkers engaging with new ideas and difficult questions (Sims 2017) and we embrace a hopeful view of systemic change through resistance. A number of Australian authors have drawn on new materialisms to illuminate material configurations that participate in early childhood education (Blaise *et al.* 2017, Merewether 2019); while these authors all allude to the potential for new materialisms to shift habitual practices, they do not specifically address teacher professional development – this article attempts to redress this. We make no claim to improving childhood outcomes or enhancing quality of early childhood settings. Instead, in sharing our experience of non-linear professional learning with a research collective of teachers, materials, children, and academics, we aim to extend understandings of professional learning to include nonhuman others as worthy interlocutors, and we put forth an invitation to welcome unease and an aesthetic-ethical-political stance. In order to complicate normative conceptions of professional learning, we share fragments of our experiences as co-researchers with early childhood teachers, materials, and children on a project that used pedagogical documentation and dialogue to transform children's relations with waste. The stories we share from this project elucidate ways in which professional learning in early childhood education might be aesthetically-ethically-politically conceptually grounded and practised.

Informed by a feminist new materialist stance, which recognises the reciprocity between the material and the discursive (Barad 2007), our inquiry invited teachers to keep waste 'in sight and in mind', to examine what a site-specific waste material *does*. Through experimentation children and teachers did not try to control or manage the waste material; instead, they were encouraged to think with water, paper, nature, space, and waste sounds and smells, focusing on how they are active and participatory. Following Pacini-Ketchabaw *et al.* (2017), we were curious as to how mutual encounters might change teachers' and children's relations with waste materials and our engagement with the world. In this article we share fragments of paper and water relations, focusing the lens both on the agency and movements of waste materials *with* us, and on the moments of unease that readily occurred within these encounters, creating an experience of collective professional learning that is aesthetic-ethical-political. Our conclusions are not simple nor are they linear; rather we offer invitations to problematise, to avoid being satisfied with simple and linear constructs, and to welcome uncertainty in worldly relations.

We begin below by outlining the ontologies and experiences that informed our project, moving amongst feminist new materialist research, the concept of movement, and the experience of the municipal infant-toddler centres and schools of the city of Reggio Emilia. We then engage with the messiness of our research methodology for the reader. Research fragments of paper and water follow; here we illuminate movements and presences of the waste materials while highlighting the implications of moments of unease for non-linear approaches to professional learning, thus unsettling linearity and rationality through means of writing.

Feminist new materialist perspectives: movements and materials

Teacher professional learning is typically framed as a step-by-step process, with popular action research models suggesting teachers will learn about and improve their practice through a set of sequenced actions such as 'look>think>act' (Stringer 2007) or plan>act>observe>reflect (Kemmis and McTaggart 1988). These linear models of professional learning are presented as orderly, neat, systematic, and one-way; while they may allow for the process to be repeated, they often do not acknowledge overlappings, entanglements, reversals, lingerings, or being stuck. Such linear framings also assume professional learning takes place within the mind of an individual teacher, who is perceived as separate from the materials, forces and concepts involved in practicing and learning. Instead, by drawing on feminist new materialisms (Barad 2007, Braidotti 2013, 2019), we argue that humans and matter are not separate; rather, humans 'are of the world … part of the world in its differential becoming' (Barad 2007, p. 185). We conceive professional learning as a constant state of movement, of 'becoming with' (Haraway 2008) multiple others, human and nonhuman (including forces and energy). Thus, professional learning cannot be understood as a solely human endeavour because meaning-making practices are inextricably entangled with matter. Professional learning is constituted by and with the ongoing intra-action (Barad 2007) of the material and the discursive. This more expansive sense of professional learning involves shifting from focusing on what an individual teacher *does*, to paying attention to ongoing intra-active becomings. Doing this moves away from the 'self-centred individualism' (Braidotti 2013, p. 48) which is a fundamental quality of a neoliberal stance. Importantly for our project with waste materials, knowledge-making was seen as a process of constructing and re-constructing encounters with waste. This required teachers to move from asking 'what is waste?' to 'what can waste do?'. Teachers were thus compelled to invent different ways of noticing waste relations, such as following waste, paying attention to waste movements, or responding to and with waste materials. Doing this work necessitated a methodology that found ways for humans and nonhumans to make themselves intelligible to one another, and to attend and respond to specific 'material entanglements in their agential becoming' (Barad 2007, p. 91).

Our new materialist stance compelled us to think with theory and concepts while re-imagining qualitative inquiry through the creative arts, dialogue, and pedagogical documentation. A such, we worked with the concept of 'movement' (Truman and Springgay 2015) both as a force for destabilising ingrained linear approaches to professional learning of early childhood teachers, and as a catalyst for 'messy' (Law 2004) research. In our project, we saw all matter (human and nonhuman) as vital and in movement, never static. This required a constant repositioning of our identities and destabilising of our professional assumptions and valued perspectives on, for example, the centrality and importance of children's points of view. Attending to movement as opposed to 'positioning' – a linear approach that is highly influential in early childhood pedagogy (Olsson 2009) – was a key practice in distancing ourselves from the rationality that neo-liberalism privileges, compelling us to eschew measurement, standardisation, pre-determination, efficiency, and universality in favour of experimentation (Olsson 2009).

Whilst our attention to movements and becomings destabilised us, it also invited us to collectively become attuned to the relational and the affective (Massumi 2015). We did this by noticing usually disregarded or avoided waste materials. This openness to the unknown was an essential quality for embracing non-linearity in thinking and acting. A movement ontology also ensured that we did not privilege a linear approach to thought which traditionally follows action, but rather in our experience concepts, thinkings, and actings constantly overlapped, in attunement with pedagogical documentation and with a view of knowledge as collectively produced.

Our relatings and becomings with materials challenged ways of doing that are germane to our professional identities as educators – the need to know, the centrality of mind over matter, a reliance on human exceptionalism and agency – creating tensions and unease. In this paper, we

convey these moments of unease in the research fragments that narrate our paper and water movements. In these stories, movement is conveyed through the illumination of waste-human relations. These fragments represent our contribution to research that is moving 'beyond the reliance on meaning and information to think about research via compositions and ecologies, which in turn are political' (Truman and Springgay 2015, p. 160).

This complex ontological perspective also compelled us to disband traditional hierarchical relations that underlie linear approaches to teacher professional learning. Instead of approaching our research in terms of 'what can we (the all-knowing academic researchers) teach the teachers (about waste)?', we took a different stance that focused on the questions of 'how can waste teach us?' and 'how can we all learn with each other, including waste, children, and the world?'. Truman and Springgay (2015) see the creation of such research collectives, which prioritise adaptability and uniqueness rather than hierarchy or authority, as a possible posthumanist and materialist future for educational research.

We also propose here that feminist new materialist and movement ontologies are in harmony with the practice-theory-research of the educational project of the city of Reggio Emilia, and always have been. In aligning our project within these perspectives, and in joining them together in our thinking about professional learning, we do not suggest that we are attempting something entirely new. Those familiar with the experience of Reggio Emilia will concur that materials and nonhumans have always been recognised as key protagonists and interlocutors in teaching-learning-research in the municipal centres; furthermore, this approach has always privileged movement, interconnectedness and transformation (Giamminuti 2013) as key values underlying educational experience; and finally the educational project of Reggio Emilia was born of the initiative of local women after WWII, who wished for a different kind of school for their children and so that their own right to work was preserved, and has since been elevated to international acclaim thanks to the efforts and innovation of countless women. To the influences of this experience on our thinking, and to the impact of its aesthetic-ethical-political ontologies and practices on our project, we now turn.

Professional learning as aesthetic-ethical-political research: the experience of Reggio Emilia

What is essential to understand in interpreting the non-linear lens on professional learning that grounds our collaborative research project is Reggio Emilia's historical and ongoing commitment to professional learning as aesthetic-ethical-political research located *within* the educational system, where teachers are viewed as research protagonists and innovators (Rinaldi 2006). This implies a view of professional learning that is constantly transformative, and which recognises culture and locality as values underpinning conceptualisations of early childhood professionalism (Arndt *et al.* 2018). This approach problematises the supremacy of and over-reliance on external 'expert providers' of professional learning programmes that are predominantly driven by deficit perspectives on teacher skills and knowledge and focus on narrow perceptions of classroom management (Scott and Armstrong 2019). We address here in turn the aesthetic, ethical, and political doings that characterise the experience of Reggio Emilia in relation to our own project, recognising however that any separation of such aspects is simply a narrative tool. In fact, the aesthetic, ethical and political in Reggio Emilia are inseparable aspects of daily practice and educational theory.

The aesthetic: progettazione

Progettazione is a strategy of thought and action that is respectful and supportive of the learning processes of the children and the adults; it accepts doubt, uncertainty and error as resources, and is capable of being modified in relation to the evolution of the contexts (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010, p. 12).

The term *progettazione* was developed in Reggio Emilia as an alternative to the dominant curriculum terminology of *programmazione*, which translates as 'programming'. *Progettazione* is a term borrowed from aesthetic disciplines and thus rather than the inherently linear and verifiable means which belong to a programming lens, this strategy privileges non-linear approaches and constant hypothesising and welcomes ethical dilemmas and uncertainties as essential to research and learning for children and adults alike (Strozzi 2014). Moss (2010) acknowledges the aesthetic dimensions as fundamental to the identity of the educational project of Reggio Emilia, likening the work of the infant-toddler centres and schools to what Osberg and Biesta (2007) term 'a pedagogy of invention'. Rather than what Bonilauri (2014) terms a 'purpose of reconnaissance', which belongs to linear approaches such as programming and traditional educational research, the possibilities of *progettazione* thus extend to invention, transformation of pedagogy, cultural elaboration, and innovation within and beyond the system (Bonilauri 2014, Strozzi 2014).

The strategy of *progettazione* applies not only to the organisation of pedagogy, but also it has become a way of constructing knowledge and relationships across all pedagogical, cultural, and organisational aspects in Reggio Emilia, including teaching and learning experiences, the design of educational environments, approaches to family participation, and professional learning for all staff (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010). Professional learning is conceived and enacted through a *progetto di formazione*, or 'formation project'. As a project of possibilities for professional learning for all professional roles within the municipal system of early education, it usually spans over a year, but always in relation to the past, present and future. *Progetti di formazione* are always driven by an ethic of research, whereby the ideas and proposals for professional learning are generated from research within the infant-toddler centres and schools in connection with the broader community (Giacopini 2012). It is important to note that, while in Reggio Emilia research and professional learning are conceived as processes that are generated from within and informed by the value of locality, since the 1980s the *progetti di formazione* have been designed to facilitate encounters with innovative ideas emerging from a diversity of disciplines in a variety of contexts internationally (Filippini 2000).

A *progettazione* lens thus shifts professional learning from a seemingly unproblematic transferral of expertise from the knowledgeable expert to the deficit implementer, to a creative and non-linear process of constantly re-imagining education from within, with the purpose of better knowing and reconceptualising the meanings and methods of education (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010). From this point of view, professional learning goes beyond merely being governed by frameworks of accountability, with the purpose of fulfiling statutory requirements (Scott and Armstrong 2019), to become 'both the right and duty of each individual and of the group' (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010, p. 13), in a collective re-imagining of the purpose and meaning of education itself. Furthermore, in the experience of Reggio Emilia, the material has always been conceived as a learner-teacher-researcher alongside the adult/child learner-teacher-researcher (Vecchi 2010, Merewether 2017), and the relationship between the material and the discursive has always been one of 'mutual entailment' (Barad 2007, p. 152).

The ethical: transformative research

> Shared research between children and adults is a priority practice of everyday life, an existential and ethical approach necessary for interpreting the complexity of the world, of phenomena, of systems of co-existence, and is a powerful instrument of renewal in education (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010, pp. 11–12).

Research in Reggio Emilia is not conceptualised or experienced as a process imposed by knowledgeable (often male) university-based researchers on less knowledgeable (overwhelmingly female)

early years educators with the intention that research evidence then be applied to daily educational practices, a view which Moss (2010, p. 10) terms 'totalising' in its efforts to normalise 'terms such as "quality", "best practice" and "evidence-based practice" – all of which assume one question, one right answer, and no differences of perspective or interpretation'. This dominant perspective on research and professional learning assumes a view of the early childhood educator as 'technician' whose task it is 'to apply prescribed human technologies of proven effectiveness ("what works") to produce predetermined outcomes' (Moss 2010, p. 12). Rather, in Reggio Emilia research has always been construed as 'an ethic of welcome and relationship' (Giamminuti 2016) whereby teachers, children, and families are research co-protagonists, best placed to create cultural innovation. Professional learning, research, theory, and practice are interrelated and inseparable, and generated within experience:

> As opposed to research which verifies, and thus has simply a purpose of reconnaissance on the context, ours is also transformative research, testing theory in relation to experience, with the aim of transforming theory and practice through new ways of learning and new actions in context (Bonilauri 2014, p. 74 [our translation]).

Research is thus viewed as an ethical approach for transformative change and experimentation (Moss 2014), for an education 'for survival, democracy and flourishing' (Moss 2010, p. 8). Research enacted by teachers in Reggio Emilia has the potential to contest and transform the linearity, also known as the 'dictatorship of no alternatives' (Moss 2014), that characterises the field of early childhood education and care and is influenced by neoliberal marketplace values (Press *et al.* 2018) and by global reform movements that are 'driven by ideology rather than evidence or necessity' (Arndt *et al.* 2018, p. 100). Neoliberalism's core assumption that its values of privatisation, commodification and competition will lead to improved performance by workers (Arndt *et al.* 2018) dominates perspectives on early childhood professional identities internationally, leading to increasing unease. Instead, the experience of Reggio Emilia recognises that teachers' professional learning requires complex, rather than linear, tools and approaches, such as *progettazione* and *pedagogical documentation*.

The political: pedagogical documentation

Pedagogical documentation could be construed as one of the most known yet most misused and misinterpreted tools that have emerged out of the experience of Reggio Emilia. It has been defined as: 'a public place' (Preschools and Infant-Toddler Centres Istituzione of the Municipality of Reggio Emilia 2010); 'a practice for negotiation and democracy' (Dahlberg 2012); and 'a democratic attitude' (Millikan and Giamminuti 2014, p. 9). Its complexities misunderstood or wilfully ignored, documentation has often been simplified in early childhood settings worldwide as a tool for recording learning, communicating with families, and showing accountability to curriculum; this reductive practice is far removed from the use, values and intentions of documentation in the experience of Reggio Emilia.

In other contexts where the policies and practices of early childhood education are informed by neoliberal discourses of compliance and conformity, documentation has become just another instrument for surveillance and accountability (Dahlberg 2012). This is counter to the experience of Reggio Emilia, where documentation is premised on connective values of encounter, interdependency, interconnectedness, difference, transformation, intent, research, uncertainty, complexity and possibility (Giamminuti 2013). Simplified interpretations of documentation often result in making visible through the means of photos and videos the traditional kinds of programmed teaching and learning practices that were already occurring in any particular context. Rather, documentation intends to democratically transform practice and enable research and complex thinking, thus nurturing professional inventiveness, inviting multiplicity of perspectives (Fleet *et al.* 2017), and stimulating collective political and ethical debate on education and its purpose.

Multiplicities and aesthetic-ethical-political doings: refuting hierarchies

> Ours is also empirical research that is generated as investigation within the field, in the places and ways in which phenomena ordinarily occur. Therefore, research that positions us in front of a complex objectivity which is dynamic and open and requires the use of multiple points of view in order to guarantee a greater collaborative and multiperspectival dimension (Bonilauri 2014) [our translation].

In Reggio Emilia, teaching, learning, and research through *progettazione* and documentation are recognised as collective and multiperspectival acts, constructed and co-constructed by humans and nonhuman elements working together in reciprocity, rather than as individual and objective choices enacted by an autonomous teacher. This multiperspectival dimension was essential to the non-linear approach to professional learning and research that our project privileged; we saw both humans and materials as part of a moving and transforming multiplicity, impossible to pin down or to nudge into linear progressions, and together experiencing unease. The encounters and dilemmas experienced within this multiplicity were influenced by aesthetic, ethical and political concerns and driven by a 'politics of affect', a tension towards 'immanent critique', and a commitment towards 'micropolitical action' through becoming (Massumi 2015).

Our engagement with the concept of 'movement' in research, and its influence on the transformation of traditional professional learning hierarchies, led us to work within a research collective that bears some similarities to the relationship that exists between teachers and *pedagogiste* in Reggio Emilia. As noted above, professional learning in Reggio Emilia is understood as daily co-participated research that that does not separate between theory and practice; within this experience, the learning of all professional profiles within the schools is viewed as a 'reciprocal exchange' (Cagliari *et al.* 2012, p. 137) which refutes linear, hierarchical concepts of leadership and traditional constructions of professional knowledge (Filippini 2000). The disruptions that occurred in our research process were thus unequivocally experienced by all, regardless of our existing professional profiles and roles, and led to transformations in pedagogies and professional identities in unexpected ways. Aesthetics, ethics and politics were the values that constantly challenged us to re-think events, relationships, and encounters.

Methodology as messiness: welcoming unease

Our chosen qualitative research tools of *progettazione* and pedagogical documentation can be viewed as 'techniques of deliberate imprecision' (Law 2004, p. 3); at no point did we intend to follow a clear-cut path or to come to established conclusions. Our aim was not to provide solutions to the 'problem' of waste, nor to unproblematically make visible children's creative encounters with waste materials; rather our aim was to activate complexity of thought and action, and to be deliberately imprecise throughout. The encounters between humans and waste materials were never simple nor comfortable, and as such their observation and analysis could not be reduced to simple means and tools: 'simple clear descriptions don't work if what they are describing is not itself very coherent. The very attempt to be clear simply increases the mess' (Law 2004, p. 2).

Furthermore, by thinking with affect, movements, experimentation, and aesthetic-ethical-political entanglements we have engaged in research as a speculative and pragmatic practice (Manning and Massumi, 2014). Waste materials, materiality, and the creative arts allowed us to keep waste 'in sight and in mind'. The ontologies of waste materials, such as the liveliness of paper and water, guided our investigations leading us to consider how material practices exceed interpretive frameworks (Truman and Springgay 2015). Our approach of thinking and doing with theory and practice as mutually constituted aligns us to the ways of working of pedagogical documentation and *progettazione*.

The research collective, composed of academics and teachers who are willing to be placed in situations of intellectual unease and work with non-linear approaches in their everyday work settings, comprised three academic-researchers (the authors of this paper), seven teacher-

researchers, and one artist-researcher, all based in Perth, Western Australia. Over the course of the year-long project: five bi-monthly research meetings were held where participants shared pedagogical documentation and raised questions; each teacher-researcher was visited by an academic-researcher and artist-researcher multiple times, with several of these site visits involving interactions with materials and children; and two intensive workshops were held for participants to share their findings and develop documentation banners for an exhibition. All meetings and visits were audio-recorded, video-recorded, and photographed.

The project's main aim was to activate the creative arts in inviting children to build relations with waste materials; the materials thus made themselves known through creative means of encounter such as photography, drawing, listening, sculpting, smelling, collage, sound-making, poetry, and more. Furthermore, the research tools offered to us by our aesthetic lens of *progettazione* and pedagogical documentation were similarly creative, inviting us to encounter each other, humans and nonhumans, in an 'entangled mess' that at times appeared impenetrable, causing unease and disruption, and generating collaborative cognitive leaps. Photographic and video documentation, along with a tentative analysis, was made visible in a private research blog and in other paper-based 'documentation folders' created by the teachers; these documents were not tidy nor finalised nor linear, rather they reflected 'the often ragged ways in which knowledge is produced in research' (Law 2004, p. 19). Waste materials and children's creative outputs such as scrunched paper and portraits of puddles also joined our meetings, bringing theory into play and seeding unease, curiosity, and illumination in equal measure.

The entangled stories of relations between materials, children, and teachers that form our data analysis resist linear categorisation, but rather are framed as 'encounters with unease'; we chose to narrate in this article moments of disruption where and when our aesthetic-ethical-political entanglements glared at us and compelled us to collectively re-imagine new directions and new relationships.

Neither universalism nor generalisation are concerns of ours. We recognise that the environmental crisis is a global concern; our ethical entanglements with waste compel us to invite educational settings everywhere to urgently build relations with waste; and our engagement with Reggio Emilia's approach to professional learning implies a far-reaching attitude to our efforts. We do so however through local means, local ideas, local micropolitics (Massumi 2015), to actively alter the conditions in which we live, professionally and humanly.

Fragments of unease: moving with materials

Rather than offering our 'findings' as simple solutions to the problems of waste or professional learning, we lean towards possibilities and experimentations that are generated through movements. We thus propose here two fragments, from two different research sites: *Paper Fragment*, from a long day care centre (an early childhood setting welcoming children aged two years old to five years old); and *Water Fragment*, from the kindergarten (4-year-olds) class of a community school. The fragments illuminate moments of unease, focusing on how the aesthetic-ethical-political lens of *progettazione* and documentation generated new pathways for non-linear professional learning.

Unease is understood here as a state of mind, body, and relation that accompanied all co-researchers throughout the project, destabilising us, bringing us together – materials and humans – and compelling us to question taken-for-granted approaches to early childhood teacher professional learning that are framed within the dominant neoliberal framework of rationality (Osgood 2006).

Paper fragment: un/invited

Some paper arrives uninvited. It comes without fanfare or forewarning, in the form of cardboard boxes, wrappings, catalogues, 'eco-friendly' padding enclosing or protecting food and equipment. If you listen, you might hear Uninvited Paper announcing itself as it crinkles, rustles, and tears when it is unceremoniously parted from the goods it accompanies. The adults rarely notice these sounds, though children do. Sometimes sounds of cardboard ripping are frightening and cause the children to recoil or

move away, but, if children get a chance, they often take hold of Uninvited Paper and explore its many languages with intent:

Scrunch, crunch, crackle, crinkle,
Flap, flop, wrinkle, pop!
Float, fly, wave and whisper,
Swish, squish, rip and drop!

Generally, however, the children don't get this opportunity because soon after it arrives Uninvited Paper is quickly hustled off by the adults into recycling bins where it is out of sight and out of mind. After all, the adults have standards to uphold and order to maintain and Uninvited Paper disrupts expected ways of being an early childhood teacher. Lurking on the floor and benches, Uninvited Paper 'is messy' and 'makes the place untidy and unwelcoming'. Uninvited Paper makes its presence known, one way or another, like a stone in a shoe or a screaming child. Uninvited Paper is neither passive nor inert. It shouts 'careless!' and 'disorganised!' casting aspersions with abandon. Even when it is squashed into wastepaper bins it springs back defiantly, resisting efforts to contain it. As the bins become fuller and fuller, Uninvited Paper needs more and more attention to keep it in check.

Folding, flattening, squashing, squeezing,
Pushing, pressing, shoving, squishing.
Be gone, uninvited, unwelcome visitor!

Invited Paper is different. It is welcomed with open arms. Some Invited Paper is even revered – High-Quality-Acid-Free-Archival-Watercolour-Paper which comes at a price is particularly special. But everyday A4-Copy-Paper is welcome too. Invited Paper is new, needed, wanted – essential for the job at hand. It stacks neatly, lies quietly – politely – on shelves from where it is carefully taken, piece by piece. The adults show the children how to make deliberate marks with paint and pencil on Invited Paper. Together paper and marks consort to draw human attention. Even so, despite all this respect, Invited Paper doesn't get to stay for long. A few marks from a child and Invited Paper moves off to a home, where, if it is lucky, it might gain pride of place on a refrigerator, at least for a while. Soon it will be usurped by a more sophisticated paper-mark collaboration and will likely find itself in a recycling bin where it will rest briefly before continuing its journey. But most Invited Paper doesn't move to children's homes. Going home is only for the privileged. Most marks on Invited Paper are experimentations which don't make the grade, so Invited Paper becomes Unwelcome and quickly finds itself alongside Uninvited Paper in the recycling bin.

How quickly paper, Invited and Uninvited, moves through the early learning centre. It is always on the move. The adults are noticing it and wonder, could its flow be interrupted? If the children find Uninvited Paper so alluring, could it, perhaps, stay a little longer? Could it be made welcome? What might happen if it were to become a welcome visitor? The adults gather Uninvited Paper but they are at a loss and within a week it is everywhere. One teacher, Katie, takes some home and experiments with it, trying to emulate the children's paper play. Katie soaks, tears, folds, strokes, sculpts, scrunches, paints, watches and listens to Uninvited Paper which gradually becomes Invited Paper, then simply, Paper. Un/Invited divisions are being undone.

Back at the centre, Paper, with Katie's help, now tantalises children with its curling sounds and tricks, invites children to add to marks already upon it, and participates in games, experimentations and play. Paper has moved from being a lifeless material to a key protagonist that asks adults and children many questions. And the adults have come to understand what Lenz Taguchi (2010, p. 49) meant when she said, 'the material world acts on our thinking as much as our thinking acts on the material world'.

Water fragment: enchantments and hauntings

Rain doesn't come, won't come. No matter how much rain is awaited, it simply does not appear. In the kindergarten classroom, all is ready to observe water enchanting children, all is waiting for rain: families have been informed of upcoming weekly 'Wet Walks' (a rather pre-emptive and hopeful naming) in the

school's urban neighbourhood, and now raincoats and gumboots wait by the kindergarten door in what will be recorded as Perth's driest winter on record. The teachers hadn't accounted for water's absence.

The dry calls instead. 'Shall we go for a Dry Walk then?' Red dust thickly covering parked cars, mounds of parched leaves clustered around drains, bunches of crackling leaves collecting on the side of the road, light leaves floating across the path, and dusty urban piazzas. No water, no moisture to be found. Sounds of crackling and crunching accompany the neighbourhood wanderings of the children and teachers, and dust flies and settles as they walk together with the dry. 'All the cracks on the ground' (Ailbe, 4 years old) are made visible to the children as the earth splits open in drought. The absence of water speaks louder than its presence, the absence creates unease and generates narratives of hope in the minds of the four-year-old children: 'there might be more rain tomorrow' somebody generously says as they leave the dusty urban streets to return to school. The water, the rain, its presence and its absence, from linear expectations to non-linear disruptions. From waiting for Water Enchantments to being presented with Water Hauntings: 'remember when it didn't rain and we said, where did the water go? […] I remember all the leaves went crunch' (Lilah, 4 years old).

Then rain finally comes. In force. Water floods the busy streets and well-frequented cafes. The deluge disperses and leaves puddles. Puddles are always enticing to children, this water that gathers in urban environments at the edges of the footpaths and takes on new forms and new lives: 'I saw lots of puddles at the way here. Some big, some deep, some flat, some really thin, some really not deep, some really deep' (James, 4 years old). Is the urban puddle the place of wasted water, generated by the inconsiderate design of our urban spaces? What happens when urban puddles are noticed? Can relations with puddles afford the opportunity to disrupt the romanticised and innocent playful encounters between children and puddles that dominate the early childhood literature?

The big and deep puddle near the local fire station calls children and teachers, and the children draw its portrait. Will this creative act of noticing the puddle's life and its relations generate care with water, enabling the children to re-examine their relationship with the water that surrounds them in their urban environment, keeping wasted water in sight and mind? There is life in the puddle: 'I saw a lot of reflections in the puddle' (Annika, 4 years old). The puddle can do things and have new encounters and adventures: 'maybe it travels with the wind, the wind helps it blow to other places and drop in other places and makes huge puddles' (James, 4 years old). The rocks, gravel, and leaves that gather in the puddle are 'the puddle's friends' (Indi, 4 years old). The puddle's portrait tells of its life and its liveliness: 'blue is helping to make it into a real puddle, of puddly stuff. These are raindrops forming. I'm pretending it's water from the sky. I'm doing a bit of blue on the leaf because it's got water on it and it isn't dead yet' (James, 4 years old).

The puddle is gone. The dry has returned. Enchantment gives way to Haunting again. Perhaps as humans go forward in lively encounters and movements with water there will be no other way than to experience Enchantments alongside Hauntings? For the teachers this is another moment of disruption and unease, for they had expected to continue the enchanting puddle portraiture today. 'Shall we stay inside instead?' The children insist on going to visit the puddle, but today there is no puddle to be seen in this urban landscape devoid of water. Or is there? The children sit. They each take a pad. They draw portraits of the puddle. The puddle is invisible yet it's still being noticed, and it still has friends like mosquitoes who look for it: 'you don't have blue on a dry puddle though because that makes it wet like a wet puddle and I need that road colour too. These [dots] are the mosquitoes going to see if the puddle was still there but it wasn't' (James, 4 years old). The teachers had expected incredulity from the children at the invitation to draw 'the puddle'. But the children remembered the puddle, its life and its friends, and they were alert to its Enchantments and Hauntings: 'so [the puddle] is not here. So it's dry […] There's just dried up pieces of water. They look wet but they are dried up. It's all dried up so it isn't as big as it was' (Annika, 4 years old). The puddle, alive or dead, enchants and haunts: 'The other day [the puddle] dried all up […] It died but hopefully it will feel better' (James, 4 years old); 'When [the puddle is] dried out it's dead' (Onni, 4 years old).

The dead puddle must stay alive for us, for the consequences of forgetting are too dire for us all. And so, adults and children together bore witness to the puddles the adults had forgotten, remembering that 'in both human and geo-bio deep time, forgetting has consequences' (Hird 2013, p. 116).

Conclusion: caring for each other's becomings

We hope that the children, teachers, paper, and water have learned to care with each other, becoming responsible for each other's becomings:

> Humans are not the only ones caring for the Earth and its beings—we are in relations of mutual care [...] We must take care of things in order to remain responsible for their becomings (Puig de la Bellacasa 2017, p. 161).

Our fragments are partial; they tell only of particular events and perspectives, particular moments of mutual care within a time of broader encounters. In addition, as we have chosen to tell them, these fragments do not highlight the role of pedagogical documentation as an active player, nor do they emphasise how the tools of pedagogical documentation are themselves agential (Merewether 2018). Thus, like Paper and Water, documentation was key to the non-linear learning that occurred. Were it not for our capacity to listen, through *progettazione* and documentation and by welcoming movements, to the disruptions and unease that arose in moments of non-linearity, had we thought and acted technically as opposed to aesthetically-ethically-politically, would we have discovered the Enchantments *and* Hauntings that constitute our caring with water, would we have noticed *Uninvited Paper* and *Invited Paper*? Would linearity have made us blind to the vagaries of the earth and its beings?

Progettazione and pedagogical documentation in Reggio Emilia are the tools that drive and sustain cultural innovation, that enable a research culture to flourish within the system, and that re-imagine teachers as researchers and innovators as opposed to technicians who embrace linearity. Teachers that are captured by situations, alive:

> It could be you drawn in by the situation, captured by it, by its eventfulness, rather than you capturing it. But this capture by the situation is not necessarily an oppression [...] it could be accompanied by a sense of vitality or vivacity, a sense of being more alive. That's a lot more compelling than coming to 'correct' conclusions or assessing outcomes [...] it might force you to find a margin, a manoeuvre you didn't know you had, and couldn't have just thought your way into. It can change you, expand you. That's what being alive is all about (Massumi 2015, pp. 10–11).

There were many times in our waste research when we felt that we were being captured by the eventfulness of the situation, by its movements, rather than us capturing it. The dry captured us, the puddle captured us, the loss of the puddle captured us. Uninvited Paper and Invited Paper captured us. But this is far more compelling, this necessity of finding the manoeuvre we didn't know we had, finding a margin, not being held hostage to the correct conclusions and pre-determined outcomes that are the prerogative of both neoliberal perspectives on education and linear approaches to teacher learning. Linearity and predictability would have been the death of us; instead, aesthetic-ethical-political non-linearity enabled us to care, and to affectively remake our relationships with paper and water, our own 'neglected things':

> Caring in this context is both a doing and ethico-political commitment that affects the way we produce knowledge about things. It goes beyond a moral disposition or wishful thinking to transform how we experience and perceive the things we study [...] an ethico-political commitment to neglected things, and the affective remaking of relationships with our objects (Puig de la Bellacasa 2017, p. 66).

The influences of feminist new materialist perspectives are illuminated in our project through the ways in which: we placed value on multiplicities and differences; we endeavoured to challenge the overemphasis of the mind over matter; we brought together the discursive and the material; and we continually contested (and grappled with) human exceptionalism. Through our storying of paper and water therefore, we put forth an invitation to include nonhuman others and neglected things as worthy interlocutors in musings about professional learning, and to place care (Osgood 2006, Puig de la Bellacasa 2017) at the centre of conversations about early childhood teachers' professionalism. We suggest that welcoming an aesthetic-ethical-political stance in professional learning doings will disturb normative conceptions of professional development and professional practice, provoking teachers to problematise, to produce knowledge through unease, to avoid being satisfied with overt,

dominant and linear constructs, and to discard predictability in favour of uncertainty and vitality in worldly relations.

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