



**Practitioner wellbeing and the physical environment
in early childhood education and care (ECEC) settings**

Literature review

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1. Introduction

This review addresses what is known about the relationship between practitioner wellbeing and the physical environment in early childhood education and care (ECEC) settings. While the material working conditions of ECEC practitioners are well documented, we know less about their subjective perception of spaces and places of work, their mental health and emotional wellbeing. In particular, the paper explores how what we might call the 'learning environment' relates to practitioner wellbeing. The learning environment has a deliberately broad focus, including the physical buildings and outdoor spaces, as well as the immediate natural world around a setting, and the pedagogic concepts employed in a setting. One might also include the way practitioners communicate as teams and their commitment to the ethos of an establishment as potentially relevant to both the learning environment and to their own wellbeing. Through this review, and associated knowledge exchange activity, we aim to establish what is known and not known about the central concepts of concern: wellbeing and learning environment in ECEC settings, and their linkages, and possible future directions for interdisciplinary and international research¹.

Why are we interested?

Early childhood education and care practitioners are essential to children's wellbeing, development and learning. It is widely recognised that '[a] well-qualified, skilled staff strongly increases the potential of any individual setting to deliver the best possible outcomes for children' (DfE 2017), but it is not only qualifications and skills that shape practitioners' abilities and motivation to nurture and educate young children. Practitioners' communicative, caring and teaching skills are also shaped by their commitment and wellbeing at work – but what factors affect wellbeing? Research on wellbeing in ECEC settings has for the most part focused on children's wellbeing and mental health, rather than that of practitioners. Research on practitioner wellbeing has focused largely on working conditions such as pay and qualifications, and the impact on job satisfaction, absenteeism, recruitment and retention, and staff turnover (e.g., Cameron and Moss 2002; Elfer et al. 2018). Some attention has been paid to staff mental health, such as anxiety, emotional exhaustion, depressive symptoms and stress, and links have been made between practitioner wellbeing and effectiveness with children. Thus, the focus has been on the *negative* aspects of wellbeing and the *structural and interpersonal* working environment. How can we move away from this to capture the relationship between practitioner wellbeing and the physical environment in which they work?

Some claim that career wellbeing is the most important aspect of overall wellbeing (Rath and Harter 2010). There has been a marked increase in scholarship on wellbeing at work in recent decades, linked to the rise of positive psychology and the growing interest in positive organisational behaviour (Fisher 2014). In the ECEC sector, to date little attention has been paid to subjective wellbeing or how this relates to children's wellbeing, or to the role of 'environment' in shaping practitioner wellbeing in educational workplaces and early childhood services in particular, although the theme has received recent attention by the UK advocacy group Pre-School Learning Alliance (2018) and the UK magazine *Nursery World*, (2019).

¹ This project was funded by an UCL Institute of Education International Award 2020. Details of the project methodology can be found in Appendix 1.

This paper provides an overview of the research literature and draws on the contributions of colleagues from the fields of ECEC and architecture, from both practice and academia, who participated in our international webinar on 1 June 2020.

Context of ECEC sector in England

In England, the ECEC sector is overseen by a single government department, the Department for Education, and unified local departments of children's services, while its provision is divided between maintained nursery schools, classes in primary schools, private and voluntary sector nurseries, preschools and childminders (family day care), with each type of provision having specific age ranges of children, requirements for staff and orientations to 'care' or 'education'. Government-funded support for children to attend is similarly split according to age and orientation, and by parents' employment status. Free part-time provision is available for children aged two (if parents are low earners or on welfare benefits or the child is in foster care) and for all 3- and 4-year-olds. The 'free' 15 hours available for 3- and 4-year-olds are doubled to 30 hours for children whose parents are in paid work. Compulsory schooling starts at age five, although nearly all children are in school settings aged four. Parents pay fees for children who are not eligible for a free place, or where funding does not cover the full costs of the education and care. In 2019, about two thirds of English children aged 0-4 attended ECEC services, for an average of 19 hours per week (DfE 2019). Accurate counts of the workforce are hard to find, but there are estimated to be around 300,000 staff working in ECEC settings (Cameron 2020).

Despite attempts at reform and professionalisation of the sector in England, there remains a division between graduate teachers with QTS (qualified teacher status), who are mainly in the public sector, and a myriad of other roles, the vast majority of which are paid at the minimum wage (Cameron 2020). These include teaching assistants in nursery schools, school nursery and reception classes; nursery nurses and assistants in preschools, nurseries and playgroups, after-school clubs and education settings; more recently Early Years Teachers (EYT) and Early Years Educators (EYE); and childminders (family day care). In other countries, there is less division. In New Zealand, concerted and so far successful efforts have created a unified, graduate, better paid ECEC workforce. In many European countries, the ECEC workforce is largely composed of graduate teachers or 'pedagogues'.

In the UK and internationally, ECEC provision is based in a range of building types, including purpose-built and repurposed, rural and urban, with varying amounts of space (per child and in total) indoors and outdoors. The built environment and the use of space is sometimes influenced by particular educational philosophies and pedagogical approaches, as discussed below.

The focus of this research

Career wellbeing is arguably the most important aspect of overall wellbeing for most people (Rath and Harter 2010), and there has been a marked increase in scholarship on wellbeing at work in recent decades, linked to the rise of positive psychology and the growing interest in positive organisational behaviour (Fisher 2014), and on the role of the built environment. However, to date, there has been little research on the relationship between the built environment and wellbeing in education workplaces, and in early childhood services in particular.

Key questions addressed in this literature review are:

- How is 'wellbeing' defined for ECEC practitioners and on what grounds?
- How is 'environment' defined for ECEC practitioners and on what grounds?

- How does the environment (natural/physical/built/learning environment) shape ECEC practitioners' wellbeing or vice versa?
- What are the relationships between the environment and practitioners' wellbeing?

This review considers each of these questions in turn and concludes by identifying issues for further investigation. We take England as our main focus of attention, but draw on international examples, inspiration and comparisons where possible.

2. Conceptualising wellbeing

In the last decade, 'wellbeing' has become a high-profile public policy issue in several high income countries. The term and its meanings vary, however, according to the policy context.

Responding to increasing recognition of the need to measure people's wellbeing as well as economic production, the Commission on the Measurement of Economic Performance and Social Progress was set up in 2008 as an international body with support from the OECD to explore measures of economic performance and social progress beyond GDP. The report distinguishes between 'an assessment of current wellbeing and an assessment of sustainability':

'Current wellbeing has to do with both economic resources, such as income, and with non-economic aspects of people's life (what they do and what they can do, how they feel, and the natural environment they live in). Whether these levels of wellbeing can be sustained over time depends on whether stocks of capital that matter for our lives (natural, physical, human, social) are passed on to future generations.' (Stiglitz et al. 2009)

The report identifies eight dimensions of wellbeing: material living standards (income, consumption and wealth); health; education; personal activities including work; political voice and governance; social connections and relationships; environment (present and future conditions); and insecurity, of an economic as well as a physical nature.

In response, the UK Office for National Statistics (ONS) set up the Measuring National Wellbeing Programme in 2010 to monitor and report progress in the UK. Personal wellbeing was defined by ONS as 'overall satisfaction with life, the extent to which we feel the things we do are worthwhile and daily emotions such as happiness and anxiety'. The programme examines the wellbeing of individuals and communities within and across countries to identify inequalities, addressing the following domains: personal wellbeing, relationships, health, work, where we live, personal finance, the economy, education and skills, governance and the environment.

In her overview of research literature on wellbeing, Fisher (2014) distinguishes between 'hedonic wellbeing' (pleasant feelings) and 'eudaimonic wellbeing' (self-actualizing behaviour). Hedonic wellbeing relates to the widely used concept of 'subjective wellbeing' (Diener 1984), i.e. 'the frequent experience of positive affect, the infrequent experience of negative affect, and positive cognitive evaluations of life satisfaction' (Fisher 2014: 10). Attempts have been made to conceptualise and measure negative and positive affect (e.g. Diener et al.'s (2010) 12-point scale). Subjective wellbeing has been defined as 'people's evaluations of their lives', consisting of 'cognitive and affective components, such as life satisfaction, positive feelings and low negative feelings' (Diener and Tay 2015: 136). Eudaimonic wellbeing, on the other hand, relates to Aristotle's concept of the 'virtuous life' and is 'linked to the satisfaction of basic human needs for competence, autonomy, relatedness, and self-acceptance', focusing on 'growth, purpose in life, meaning,

pursuing self-concordant goals, self-actualization, and virtue' (Fisher 2014: 11). Social relationships are also considered to constitute an important aspect of wellbeing.

Seligman's (2002) original 'authentic happiness' model focused on positive emotions, engagement ('flow'), and meaning or purpose in life. He later added two more elements: accomplishment (success/winning/mastery) and positive relationships with others (Seligman 2011), arguing that 'flourishing' occurs when all of these elements are in place.

In the UK, Huppert et al. (2004) developed a working definition of wellbeing as 'a positive and sustainable state that allows individuals, groups or nations to thrive and flourish':

This means that at the level of an individual, wellbeing refers to psychological, physical and social states that are distinctively positive. Positive psychological states are exemplified by emotions such as happiness and contentment, attitudes such as generosity and empathy, and mental processes such as cognitive capabilities, interest and motivation. Positive physical states are characterized by vitality and physical capabilities, while positive social states include satisfying social bonds and loving relationships. Our definition of wellbeing also encompasses human resilience—the ability to survive and thrive in the face of the setbacks inherent in the process of living. (ibid: 1331)

Huppert and So (2013) proposed a three-dimensional model of wellbeing and flourishing, which focuses on positive appraisal (life satisfaction), positive functioning (engagement, competence, meaning, positive relationships), and positive personal characteristics (emotional stability, vitality, optimism, resilience, positive emotion, self-esteem).

In theorising structural power relations as well as the affordances of the built environment from the perspective of ECEC practitioners, it may also be helpful to conceptualise wellbeing through the lenses of agency, autonomy, subjectivity and subjectification (or subjectivation) (e.g. Giddens 1982, 1991; Butler 2005), power and social relations. These concepts highlight the degree of control that an individual perceives themselves to have over their circumstances, and the structural opportunities and constraints that shape individual action.

Additionally, from a human development perspective, a capabilities approach (Sen 1999, Nussbaum 2000), informed by the theory of contributive justice (Sayer 2012) could also be useful in taking account of the social processes and 'external conditions in which people act' and placing an emphasis on 'what people are able to do as a major determinant of their well-being or ill-being' (ibid: 581). The focus on structural inequalities could be of particular interest.

3. Conceptualising wellbeing in the workplace

Wellbeing at work is multidimensional and incorporates aspects of wellbeing in general, from positive affect and social wellbeing to job satisfaction and eudaimonic wellbeing at work (Fisher 2014). It also includes attitudes, such as organisational commitment, which may relate to shared values or goals (normative) or feeling part of the organisation (affective) (Fisher 2014:16). There is a growing interest in eudaimonic wellbeing at work: this can be considered in terms of factors such as 'job involvement, work engagement, thriving, flow and intrinsic motivation, meaning in work, and calling at work' (Fisher 2014:17). Two aspects of workplace meaning – 'doing something important and self-actualising', as well as identifying with the organisation or other people at work – have been shown to contribute to employees' sense of identity (Fisher 2014:19).

Diener and Seligman (2004:11) argue that work shapes wellbeing since it can be a source of pleasure in providing 'enjoyable activities' as well as 'a structure for the day, social contact, a means of

achieving respect, and a source of engagement, challenge, and meaning'. Positive emotions at work are correlated with better performance and a greater sense of organisational belonging: 'satisfied workers have lower turnover and absenteeism than nonsatisfied workers, and are more punctual, cooperative, and helpful to other workers' (Diener and Seligman 2004:11). Whilst they acknowledge that worker satisfaction is shaped by 'characteristics of the workplace', the impact of the physical environment does not form part of their analysis, while consideration is given to 'flex-time, on-site day-care facilities, plans for allowing employees to work at home, employee stock options, and generous family-leave policies' and 'appropriate praise and feedback, facilitating friendships on the job, and providing the tools workers need' (ibid: 13).

Similarly, in the UK, the What Works Centre for Wellbeing (2020) has identified five principles for wellbeing at work. The five aspects they propose as essential in the development of wellbeing in the workplace are: communication about wellbeing (recognising communication is a two-way process, learning about what works, sharing successes); coherence (having a consistent narrative); commitment (perseverance, trust, overcoming obstacles, being flexible and focused, monitoring and evaluating, creating an open and inclusive workplace); consistency (ensuring compatibility with existing processes and norms, health and safety practices); and creativity (replacing 'toxic norms' and processes with ones that promote wellbeing). Again, there is no reference to the physical environment.

Understanding the links between the built environment and wellbeing has been growing over the past few years. Throughout history, aesthetic qualities of grand architecture, urban and landscape planning, as well as the placement of windows to capture light and views, and the design of objects such as furniture and lighting, have been understood to have the ability to lift the spirits and to be inspirational, if they are conceived with a clear vision and crafted with care and attention to detail. For the past century, the link between health – or its absence – and buildings has dominated. It has been studied in depth by engineers and architects, and has focused mainly on ensuring that buildings are structurally safe, comfortable and healthy. This has resulted in regulations, based on empirical studies, that establish parameters for air quality, temperature, noise levels, lighting and furniture. Organisations including the UK's Health and Safety Executive provide guidance and monitoring to ensure recommendations are met.

More recently, attention has begun to shift from the avoidance of problems associated with negative outcomes, such as sickness absence, to the creation of positive environments for wellbeing. Some evidence connects views of nature to wellbeing and outcomes connected to wellbeing - connecting, being active, taking notice – to interventions in public space (Anderson et al. 2016). In work buildings, employees are more satisfied if they have personal control over the internal environment, for example if they can control the temperature or open a window (Leaman and Bordass, 1999), and potentially healthier if they are enabled or encouraged to be physically active in buildings as well as while travelling (Smith, Marmot et al. 2016). While there is a considerable body of research on internal environmental conditions in schools and higher education buildings, (eg Barrett et al. 2015; Mumovic et al. 2016; Williams et al. 2016) the focus is mainly on energy use, comfort, in some cases on learners' educational outcomes, however the impact on wellbeing, and the impact on staff are absent.

4. Conceptualising wellbeing of ECEC practitioners

The wellbeing of ECEC practitioners has in general been conceptualised in terms of working conditions and a lack of wellbeing. Overall, in England, ECEC practitioners are poorly qualified and poorly paid, and there are indications that the workforce is not sustainable (Cameron 2020). Annual

turnover is high, particularly amongst those in the private sector, and there is a reliance on unpaid staff; many ECEC practitioners suffer from burnout and stress, which affects their mental health (Cameron 2020).

Elfer et al. (2018) highlighted the anxiety, exhaustion and risk of burnout faced by ECEC practitioners due to the 'routinely stressful and emotionally charged situations' they are engaged with. Similarly, in Norway, Løvgren (2016) has explored emotional exhaustion (EE) amongst ECEC practitioners; her survey of more than 2500 workers revealed that:

Three important aspects of the childcare worker's day, – work role, expectations, and co-worker support, – are determinants of EE; all are large statistically significant variables. And in this analysis, they are the most dominant factors for ensuring the workers' (both assistants and teachers) emotional wellbeing. (Løvgren 2016:164)

Further, Løvgren notes the effect of low wellbeing of practitioners on children in their care, as well as on rates of absenteeism, job withdrawal and lower levels of effectiveness. This is in line with previous research, including a meta-analysis undertaken in 2008 which 'identified role ambiguity as the work stressor with the highest correlation with job performance (other stressors include role conflict, role overload, job insecurity, work-family conflict, environmental uncertainty, and situational constraints)' (Gilboa 2008, cited in Løvgren 2018:159-160). There was no mention of the impact of the physical environment on practitioners' wellbeing in either study.

Cumming (2017) updated an earlier review of ECEC practitioners' wellbeing (Hall-Kenyon et al. 2014) which had identified compensation, stress, job satisfaction and education levels as key issues. Cumming, using the same search terms, found that key topics were 'work environment, psychological and emotional wellbeing, and work-related stress'. Aspects of the work environment included 'work conditions including the material and relational work environment, employment security, and fair pay', as well as 'work climate, such as relationships with colleagues and job autonomy' (Cumming 2017:587). Cumming highlights that:

Where educators experienced imbalances between the demands of their job, their control over these demands, and the supports available to them, they reported high levels of stress that were also associated with depressive symptoms, and higher levels of conflict in relationships with children. (ibid: 587)

Cumming concludes that findings highlighted 'the highly relational and interconnected nature of the early childhood work environment and the effects of these connections on educators' wellbeing.' (Cumming 2017:587). Cumming cites three papers which address the 'material' work environment. One of these, Løvgren (2016), was discussed above; the second relates to financial wellbeing. The third paper, an analysis of a nationwide survey of pedagogical staff in children's day care centres in Germany (Schreyer and Krause 2016), found that 'staff who rate their working conditions as good are more content with their work in general, feel more committed both to their employer and profession and feel less stressed at work than their colleagues who work under poor conditions.' The survey included questions about 40 'work conditions', most of which are not identified in the article, but which included access to a room where staff can have breaks.

5. Impact of physical environment on wellbeing in learning spaces

The physical environment has a significant impact on individuals' wellbeing, making this a central consideration for many architects. As Smith et al. (2012:2) highlighted, '[e]nvironments that people inhabit and experience have the power to enhance the wellbeing of individuals and their

communities'. Space should be arranged with sensitivity to the needs of those using it: 'The physical environment can affect the emotions and spirits of people [...] either in constricting, negative ways or in positive, therapeutic ways, or a mix of both' (ibid: 4); factors such as 'noise, temperature and lighting, a sense of safety and vistas to look out on' can affect individuals' wellbeing, in the moment or in the long term (ibid: 4): 'People are interdependent with their settings and belongings, within and among which they construct themselves and each other through their ongoing interactions' (ibid: 4).

There is growing interest in the field of 'learning environment', or learning space, research. Ellis and Goodyear (2016), focusing on the context of higher education, explore how well-designed space can facilitate effective learning (rather than 'wellbeing'). They consider how 'learning' can produce a 'changed sense of identity' and 'attitudinal change'; it can be 'radical', causing 'deep, irreversible change to conceptual structures and beliefs' (ibid 2016: 155). Differentiating between different conceptualisations of learning (knowledge acquisition, participation, knowledge creation) and learning spaces, they deconstruct the concepts of 'space' – referencing Turnbull's (2002) categorisation of space (discursive, cognitive, existential and material) – and 'place', and allude to discussions of how to conceptualise the 'learning environment' (Goodyear 2000). They reflect on the layouts and furnishings of learning spaces and how these shape pedagogies and students' learning experiences ('form and function').

In Finland, Luminen et al. (2018) advocate a collaborative design process to create 'flexible learning environments' which enable informal and formal learning in different spaces ('ubiquitous learning'). In contrast to the hierarchical and static conventional classroom, physical learning space should facilitate rather than restrict pedagogies. They recommend multipurpose spaces with varying degrees of openness and versatile furniture, in order to accommodate groups of different sizes as well as 'different personality types and learning styles' (ibid: 13).

In ECEC learning environments, there is often a lack of consideration given to the design of environmental sustainability, external identity, storage and adult spaces. A review of children's centres in England found that 'elements that have prescribed space standards, such as children's play areas, or that have a dedicated separate budget, such as furniture and equipment, are well designed and specified' but those without were poorly rated by users (CABE 2008:4). User participation in the design process was often neglected due to the speed of implementing the children's centres programme, which impacted negatively on service users' perceptions of quality. The principal areas of concern were centres' external identity, approach, signage, buggy and other storage, poor quality spaces for staff and other adults, and environmental sustainability measures (ibid).

Dudek (2015:9) has examined the realisation of educational theories in built form, taking into account 'space, acoustics, lighting, sustainability, outdoor spaces'. He argues that new nursery buildings, where design prioritises rooms for different ages, produces a 'highly dysfunctional relationship between pedagogy and space', whilst in older non-purpose-built nurseries, space 'emerges organically as a result of enlightened forms of education' (ibid: 10). For Dudek, 'Radical pedagogy goes hand in hand with spatial adaptations, which are constantly changing to match the needs of the evolving curriculum' (ibid: 11). He highlighted the approach at Reggio Emilia, where

'architecture and pedagogy is fully integrated and the level of discourse is deep and philosophical. [...] The school environment becomes a sort of workshop for research and experimentation where perception of things, and in particular, the relationships between children, become fundamental strategies for building individual cognition and knowledge.

Reggio buildings are often beautiful by any subjective opinion, but the extent to which they encourage interaction with the users really defines their success.' (ibid: 12)

There is an emphasis on 'non-hierarchical space' and 'light, colour, materials, sound, smell and microclimate' (ibid: 12). Case studies with photographs and floor plans demonstrate the use of colours, space, sliding doors, multi-functional space, purpose-designed furniture, child-orientated features and natural materials, allowing free-flow play and spatial complexity.

'The illusion of privacy within an open environment is a balance achieved by the subtle definition of different areas and different spaces. [...] There is a sense of freedom of movement between the different areas of the building, yet at the same time children are made aware of what is and what is not their own territory. All of the Reggio projects are experiments in creating children's spaces which incorporate the pedagogic system in a precise way and its reflection as aesthetically harmonious interior architecture. This is achieved within the context of a clear form treating the architecture as background to the children and their activities. It is spacious, elegant and decorated in a restrained manner so that architectural simplicity is never overwhelmed by the artwork or the activities that take place within. It is a fascinating environment for children providing a balance between social and private spaces in a coherent architectural style.' (ibid: 73)

Huppertz (2010) advocates applying a 'life-related' pedagogical approach in early years education to 'the use of space from the architectural perspective': 'children should learn as much as possible through movement and original experience' which should inform architectural decisions (ibid: 46). The architect must understand the child's need for 'activity, security, calm [...] and learning' (ibid: 47), and should ensure the participation of educators in the design process. Consideration should be given to the purpose of the space and the needs of those using it. Attention must be paid to guidelines and standards whilst ensuring flexibility and versatility, prioritising interconnection and openness. Outside space should facilitate exploration and opportunities for children to 'mess about and play' (ibid: 49). The literature is marked by an absence of consideration of spaces for staff.

Prompted to consider practitioners and their wellbeing within ECEC settings, debate during the project's knowledge exchange seminar produced the following ideas and dimensions of physical environment to be taken into consideration specifically in relation to ECEC settings: accessibility; the permeability of boundaries; perceptions of security and safety, and the role of boundaries/thresholds in facilitating these; access to the natural environment, and the significance of urban/rural locations in relation to this; the relevance of settings which are located in shared spaces (e.g. 'packaway' nurseries based in church or community halls); boundaries between personal and professional spaces in domestic settings; access to therapeutic spaces (Dyer 2020); personal, social and public spaces; hierarchies of spaces and the 'nesting' of authority in particular spaces.

6. Impact of physical environment on ECEC pedagogy and on children's wellbeing

It is widely recognised that the design of ECEC buildings and interiors and the use of space have a significant impact on young children's wellbeing.

In England, the Statutory Framework for the Early Years Foundation Stage (EYFS) (DfE 2017) sets out minimum standards for regulated early years premises. In relation to indoor space, it stipulates that there must be 3.5 m² per child under 2; 2.5 m² per child aged 2; and 2.3 m² per child for children aged three to five years. There is considerable variation in space requirements amongst OECD

countries, with Italy and Finland requiring more than 5m² per child inside, and Norway requiring more than 20m² per child outside (and considerably more for younger children), whilst Italy and Turkey require less than 2.5m² per child outside. There are also striking within-country differences. The OECD average indoor requirements are 2.9m² for preschool children and 3.6m² for younger children, whilst for outside spaces the averages are 7m² and 8.9m² respectively (OECD 2011).

In England, the EYFS further requires ‘a separate baby room for children under the age of two’, provision of ‘an area where staff may talk to parents and/or carers confidentially, as well as an area in group settings for staff to take breaks away from areas being used by children’ and ‘access to an outdoor play area or, if that is not possible, ensure that outdoor activities are planned and taken on a daily basis’, and sets out guidance on toilet and changing facilities (DfE 2017). Beyond these requirements, it is up to providers to plan and organise their space as they see fit.

There has been very little research on the impact of the amount of space per child and the configuration of space on children’s (or practitioners’) wellbeing. In a rare exception, an architectural project on designing care spaces specifically itemised ‘staff importance’ (Parkinson nd). Neglect of the relationship between space and wellbeing may be due to ‘socio-cultural and social constructivist approaches to learning which place greater emphasis on relationships between adults and children than on physical space’ (Pairman 2018:2). Pairman notes that official reports in New Zealand raising concerns about children’s health and wellbeing in relation to lack of space and poorly configured space, including in relation to the spread of diseases, have not specifically examined the impact of these factors. This may be a particularly important consideration in the current global context of Covid-19.

In the UK and internationally, ECEC settings have been influenced by pioneers who have reflected deeply on connections between the physical environment, pedagogy and children’s wellbeing, and have sought to maximise the potential of architectural and interior design to positively influence children’s learning and development. Here we provide a brief overview of the impact of Froebel, Reggio Emilia and Montessori on understandings of the impact of the physical environment on children’s wellbeing.

Froebel and kindergartens

German educator Froebel developed the concept of ‘kindergarten’ in the early nineteenth century. He emphasised the importance for young children of learning through play and experiencing the world through the natural environment.

‘Froebel saw children as active, curious, creative learners who learn best through activity, play, talk and self-reflection.’ (Tovey nd: 8)

Links should be made between indoors and outdoors and between different activities, promoting free flow. Froebel emphasised unity and connectedness, and links with the local community, such as visiting local tradespeople and sharing produce from their gardens with those less well off.

‘The child should experience nature in all its aspects – form, energy, substance, sound and colour’ (Froebel in Lilley 1967, cited in Tovey nd)

Direct experience of nature was central to Froebel’s principles: the garden was ‘a place for activity, curiosity, investigation and play’, where children were encouraged to plant seeds, tend plants and harvest produce (ibid). Froebel believed that children should experience all aspects of nature including ‘the universal laws of nature such as forces, gradient, gravity, motion, energy, light, sound, the properties of materials and their transformations’, and prioritised the outdoor, natural environment as the best way to do this.

The provision of natural and open-ended resources and materials (‘gifts’ and ‘occupations’), such as wooden blocks and treasure baskets, enable children to explore forms of knowledge and beauty.

The concept of the kindergarten developed throughout Europe and the US in the nineteenth century, and Froebel's pedagogical approach remains highly influential today.

Reggio Emilia

The Reggio Emilia approach emphasises 'the importance of environment as an educating agent' and 'the importance of constant care and research into interesting furnishings, materials and contexts' which can shape pedagogy (Vecchi 2010:83). Thought is given to layouts where adjoining spaces are acoustically and/or visually separate, 'making it possible and practical to do various kinds of work in small groups and to be able to observe and document children's work' (ibid: 86).

Vecchi stresses the importance of involving practitioners in (re)designing spaces and buildings to enable 'closely woven dialogue between pedagogy and architecture, which would [...] make generations of teachers, atelieristas and pedagogistas more sensitive to their physical environments', including their sensory qualities, and enable a deeper understanding of children's 'sensitive sense of physicality', their 'relation with space', and how they explore space (ibid: 87). Staff wellbeing is an implicit but foundational aspect of Reggio Emilia practice (Cagliari et al. 2016). Involving parents in maintaining the nursery is also important; it is a means of helping children understand the role of the community in caring for their environment.

In designing and caring for environments, consideration is given to 'how much environments allow or forbid, how much they encourage or censor, how much they educate ways of seeing, exploration and sensibility' and the effects the design process can have 'on our relationships with children, the surrounding environment and educational work'. Early years settings must recognise 'the importance of sensory qualities in environments: light, colour, sound, micro-climate, etc. and how much these influence people's perceptions and overall quality of living' (Vecchi 2010:89). Furnishings are an integral part of environments and detailed attention should be paid to these.

Michele Zini, an architect associated with Reggio Emilia, has expanded on the physical environment, emphasising that consideration should be given not only to building structures but to

creating artificial ecosystems made up of furniture, symbols, colours, materials, lights, smells and sounds. It [...] is not only compliance with the regulations that determines the quality of a project. Nor is it simply the architectural quality; there are examples of beautiful buildings that fail to provide a good environment for children. What determines the quality of a project is its capacity to transmit and support a certain image of the child, a child who has a hundred languages and the right to an environment that is rich, multifaceted, complex, well tended, beautiful. And finally, this work made it clear how senseless it is to conceive the architecture and the interior design of a school separately, as often happens; rather, they are elements of the same environmental system. (Zini, in Vecchi 2010:97)

7. Impact of physical environment on practitioners' wellbeing in early years settings

Very little research has addressed the relationship between architecture and interior design practices in shaping the physical and learning environment and the wellbeing of ECEC practitioners. We have seen in the foregoing how wellbeing has become an established concept in relation to measuring citizens' overall health, and dimensions of wellbeing have been identified in relation to work settings. Although there has been a strong thread of research on the working conditions of ECEC practitioners, their broader wellbeing at work is poorly understood. It is either implicit in a general philosophy of care and education, such as in the nurseries in Reggio Emilia, or it is invisible

and unrecognised, in for example, the standards including space standards applicable to nurseries in England. Simultaneously, while there has been some attention to the impact of the learning environment on children and their families, such as through the layout of the building(s), the impacts of thresholds and transitions between spaces, and on possibilities for surveillance, the measures in relation to staff tend to focus on the technical and aesthetic details such as light, temperature, colours, smells and sounds, as well as the availability and sufficiency of office space (including access to IT facilities), personal (quiet) spaces and social spaces, such as staff rooms, which will affect interactions with colleagues.

Other dimensions of the physical environment of an early years setting that might also be relevant include its geographical location (urban, suburban, rural; proximity to other significant places and open, green spaces); its identity as a place of safety or a 'haven' (for example in a neighbourhood with high levels of violence); its accessibility to staff in terms of the journey to work (transport links, parking facilities) and access to the setting and to spaces within the setting, particularly for people with disabilities.

Georgeson and Boag-Munroe (2012) explored the impact of the physical environment of early years settings on practitioners (and families), suggesting that we 'learn to 'read' buildings as texts' by associating buildings' features with particular activities. They term this 'architexture':

the combinations of sensory, social and cultural affordances of a building can affect how comfortable we feel when approaching, entering and using that building.

The authors draw on the concept of 'affordance', developed by Gibson (1979) and Heft (1988), which emphasises individuals' awareness of the function of objects and events in the environment and 'the opportunities they afford for action' (Georgeson and Boag-Munroe 2012:209). They argue that working with this concept with practitioners (and service users) can enable them to be more confident and agentive users of the buildings and space.

Recent research has focused on the impact of aspects of the physical environment on ECEC practitioners' physical wellbeing, for example in relation to high noise levels and the physical demands of the job. Viotti et al. (2017) have shown that practitioners are 'required to lift, bend or carry children as well as sit on small furniture or on the floor' in their daily interactions with children, affecting their 'work ability'. This concept is a 'central aspect of worker health' which 'refers to the physical and intellectual resources' that workers need to meet the emotional, cognitive and physical demands of their work (ibid: 544). Low 'work ability' is often reflected in high staff turnover, high levels of absenteeism and low effectiveness which can be apparent in relationships with children. Meanwhile, Fredriksson et al. (2019:1188) have demonstrated that 'working as a preschool teacher significantly increases the relative risk of self-reported hearing-related symptoms'. The concepts of agency, autonomy and affordances referred to earlier may be of particular relevance in considering the relative levels of control that ECEC practitioners feel they have over their physical environment and the ways in which this may shape their wellbeing.

One key 'jumping off' point to consider future directions for research in this general field might be Clark's (2010) studies of collaborative design between children, architects and staff about transforming a space. She found concerns about functions of the space, its build quality and about its 'feel', but also that participants found it difficult to articulate 'feelings about an existing environment or desires for a future space' (ibid: 24). This invisibility about describing shared spaces was noted by Gordon et al. (2000) in their reflection on the relationship between environment and wellbeing in secondary schools. In this ethnographic study, distinguishing between the 'layers' of official school, informal school and physical school which were entwined but distinctive enabled analysis of the invisible.

8. Conclusions

This review of literature relevant to the wellbeing of practitioners and the physical environment and the relationship between the two in Early Childhood Education and Care settings has revealed a deep absence of evidence. The focus, in official regulation, and studies to date, and in philosophies of early education, has been on the children, and not the staff, despite the clear linkage between adult and child wellbeing. Findings in relation to staff document working conditions, and professional profiles, which vary across countries (Oberhuemer and Schreyer 2017).

However, drawing together the findings of the review creates a starting point for future research with a focus on practitioner wellbeing and its relationship to the physical environment. Indicators referred to include:

- Spaces, their layout and furnishings, should facilitate pedagogies not restrict them
- Good working conditions facilitate reduced stress levels among staff
- Practitioner health is supported by having appropriate physical and intellectual resources to meet the emotional, cognitive and physical demands of their work
- Having some degree of control including decision making, over one's environment and work practices supports reducing stress
- Multipurpose spaces with varying degrees of openness and versatile furniture, that can adapt to groups of different sizes as well as differences in learning styles
- Official regulations of space and its uses, and user experiences, are valuable parameters of 'good' environments, but rarely in themselves sufficient if they don't take into account philosophies and pedagogies
- A focus on the interpersonal as a frame for learning may have obscured the role of the physical, and in particular how spaces play a role in transmitting infection and maintaining health
- Natural and open-ended resources and materials support children's curiosity and learning, which reorients practitioners into supporting discovery rather than directing learning.
- Physical links should be made between indoors and outdoors and between different activities, promoting free flow of children and reducing the marshalling of children into and out of different spaces
- Differentiating adjoining spaces by visual and acoustic signalling supports small group work and helps staff to observe and document children's work
- Involving practitioners in (re)designing spaces and buildings to enable 'closely woven dialogue between pedagogy and architecture' and sensitising practitioners to physical environments
- Involving parents in maintaining the nursery is also important as a means of helping children understand the role of the community in caring for their environment
- Managers and leaders in ECEC should recognise 'the importance of sensory qualities in environments: light, colour, sound, micro-climate, etc. and how much these influence people's perceptions and overall quality of living'
- High quality buildings have the capacity to transmit and support an image of the child as a 'child who has a 'hundred languages' and the right to an environment that is rich, multifaceted, complex, well-tended, beautiful'.

Initial questions to have arisen during the course of this preliminary scoping study that might shape further inquiry are:

- Are the indicators for high quality environments for children's wellbeing also relevant to support staff wellbeing or are there other indicators not previously taken into account?
- To what extent and how are more general workplace wellbeing indicators present for ECEC staff?
- What dimensions of physical environment are most relevant for ECEC practitioners, and in different types of provision and country contexts?
- What do ECEC staff notice and not notice about their daily working environment? What do they include as 'environment' and 'wellbeing'?
- How can we categorise ECEC environments? What dimensions are important beyond compliance with regulations?
- What is the relationship between 'good' environments and practitioner hedonic and eudemonic wellbeing/flourishing?

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Appendix 1

Project design and methodology

The interdisciplinary team for this project consisted of Claire Cameron and Rachel Bencheckroun (Thomas Coram Research Unit, UCL Institute of Education) and Alexi Marmot (UCL Global Centre for Learning Environments, Bartlett Faculty of the Built Environment). Originally, the geographic focus of the study was Finland and its deployment of space and design to support children and families in one city, Hameenlinna. The design included a literature review, and two knowledge exchange seminars either side of a study trip to Finland. Restrictions on travel from March 2020 onwards due to Covid-19 forced a design change. The literature review was followed by a webinar with selected expert invitees from the fields of ECEC and architecture. The webinar format enabled much wider international participation than would have been possible with a face to face seminar, with invitees from New Zealand, Germany, and Italy as well as Australia and Finland. Forging links through the webinar enabled us to generate a network of interested persons who may, to lesser or greater extents, participate in the next stage of the work. Not travelling also meant we could carry out a small number of telephone interviews with ECEC practitioners to explore aspects of the findings of the literature review. Findings from these will inform the next research proposal. We have also explored possible methodologies for a study, and at present are looking the feasibility of a mobile ethnography app called Indeemo, as a way to capture ECEC practitioners perceptions of wellbeing at work and the physical environment in which they work through in the moment dialogue and photographs. As we develop ways of operationalising central concepts other methodologies may become more central to our thinking.

Outputs: Literature review; webinar; international network; interview findings.

Further potential outputs: paper for publication based on the review and interviews; proposal for funding; website.

Webinar attendees:

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Dr Alison Clark

Dr Gabriella Conti

Kate Cowan

Prof Carmen Dalli

Mark Dudek

Emma Dyer

Dr Peter Elfer

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