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Moving from paper-based to digital documentation in Early Childhood Education: democratic potentials and challenges

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ABSTRACT

Recent years have seen a growing shift in Early Childhood Education from paper-based observation and documentation practices to digital documentation systems such as 'e-portfolios' and 'online learning journeys'. Here, we bring a multimodal lens to these new practices and consider the potential of digital documentation for democratic assessment practices that recognise and value *all* children's learning, particularly children who are living with disadvantage or in the early stages of learning English. Reporting on participatory ethnographic case studies of three diverse multicultural early years settings in London, we illustrate how digital documentation opens new possibilities for capturing the dynamic and embodied vibrancy of young children's learning and can make children's documentation more accessible to children and their parents. However, many digital documentation systems are currently designed primarily for adults, rather than for children to access and contribute to their own documentation. We suggest that adult-oriented design risks marginalising the child's voice as documentation moves from paper-based to digital formats. Our findings call for collaboration between researchers, educators and digital documentation systems designers to ensure that these relatively new tools support democratic and inclusive assessment practices, where *all* children's meaning-making, in whatever form, is recognised, celebrated and shared.

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Introduction

Observing and documenting young children's learning has a long and rich heritage in Early Childhood Education (ECE) and is central to practice. Documentation of children's play supports educators to make sense of children's interests and interactions, informing planning, pedagogy and assessment. However, the tools, practices and social-political contexts for observation and documentation have changed significantly over recent years in England, as they have elsewhere (Gallagher 2018; Frans et al. 2020).

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First, educators are often under increased pressure to measure individual children's progress against narrowly-defined developmental stages, reflecting a political focus on 'school-readiness', which implies 'there should be a *fixed standard* of physical, intellectual, and social development that prepares children to meet school requirements and assimilate curriculum, typically embracing specific cognitive and linguistic skills' (Whitebread and Bingham 2012, 4). This approach to assessing early learning belies the complexity of how young children demonstrate their understanding in many different ways, through their drawing, model-making, dance, storytelling and role-play (Kress 1997), and through less tangible expressions of meaning-making, such as the silent and ephemeral ways that they solve problems, find creative solutions and negotiate interaction (Flewitt 2005b). An educational climate of 'datafication' focused on prescribed developmental milestones means children's more subtle signs of learning may all too readily be overlooked or dismissed (Bradbury and Roberts-Holmes 2018).

Second, observation and documentation practices are undergoing a profound shift as paper-based practices become increasingly digitised. Educators are now faced with a range of digital systems such as 'e-portfolios' and 'online learning journals', which are marketed as tools for simplifying and streamlining early years assessment. These digital documentation systems can be used on tablets and smartphones to capture learning 'on the go' and 'in the moment'. Combining photographs, video clips and audio recordings, digital documentation creates multimodal texts that differ significantly from paper-based observations, in that they can capture moving image and sound, and they can be shared both locally and remotely. Digital documentation systems are seeing rapid uptake across the ECE sector. For instance, the UK market-leading system Tapestry currently provides digital journals for over one million children (Tapestry 2021). As just one in a range of documentation systems (see also Storypark, Seesaw, EvidenceMe), this growing international market demonstrates a significant global shift towards digital documentation in ECE.

Despite the increasing and widespread uptake of digital documentation in ECE, there is limited research examining the democratic potentials and challenges of moving from paper to digital documentation systems, and little guidance for educators and software developers on how to include digital documentation in early childhood education pedagogy. Our study, which was funded by The Froebel Trust, aimed to address this gap in knowledge.

Researching digital documentation in Early Childhood Education

Documentation in early years assessment of children's learning is always partial, entailing processes of selection that are deeply influenced by socio-political factors such as curriculum and educational policy, which shape what becomes recognised and valued as signs of learning (Bezemer and Kress 2016). Dahlberg, Moss, and Pence (1999) critique a pervading neoliberal 'discourse of quality' in ECE, in which standardised assessment reduces the complexities of early childhood to measurable, norm-referenced categories. In contrast, they argue for a 'discourse of meaning-making', valuing diversity, plurality and uncertainty, which require assessment systems that are commensurate with democratic accountability rather than managerial control.

In this regard, a multimodal perspective on documentation is particularly significant as it broadens the scope of assessment to embrace the diversity of silent, embodied and dynamic ways that young children make meaning. Multimodality also lends rich, theoretically-grounded insights into the increasing turn to a 'pedagogy of listening' and 'pedagogical documentation' which have helped to establish an assessment discourse with meaning-making at its core (Dahlberg, Moss, and Pence 1999). Originating in the educational approach of Reggio Emilia, pedagogical documentation seeks to value the multiplicity and complexity of children's learning, and to reflect on the educator's own role in this interpretive process (Rinaldi 2006). This approach resonates with multimodal perspectives, which seek to recognise the many forms which learning takes beyond language (for instance, through individuals' use of gaze, gestures and movement, and through more tangible expressions of understanding such as drawings and models). Although researchers have studied the potential of pedagogical documentation in early years contexts beyond Reggio Emilia (Knauf 2015; Reynolds and Duff 2016; Rintakorpi 2016), further research is needed to consider the specific affordances of digital tools for making learning visible and sharable in new ways (Bath 2012).

Research into digital documentation has begun to emerge, particularly in New Zealand, where there is a history of socio-cultural assessment approaches in ECE in the form of 'learning stories' (Carr 2001). This work has begun to highlight the potentials of digital documentation systems to support communication between educators and families (Higgins and Cherrington 2017; Gallagher 2018), to develop teachers' pedagogy (Lewis 2015; Hooker 2019) and to include the child's voice (Khoo, Merry, and Bennett 2015).

Whilst typically marketed in ECE as time-saving devices that can enhance educational practice, concerns have been raised that digital systems may become instruments for increased measurement and surveillance of children (Lupton and Williamson 2017; Williamson 2017) with children's complex learning becoming 'datafied' (Bradbury and Roberts-Holmes 2018). Gallagher points out that digital documentation systems 'are more than a benign technology' (37), as they have the potential to become tools for governance. Digital documentation therefore presents both new challenges and new possibilities for assessment in early years education, and is an area in need of careful scrutiny.

Building on our previous work (Cowan and Flewitt 2020), in this paper we report our research findings on the potentials of digital documentation for democratic, inclusive and participatory approaches to early years assessment. The research asked two key questions:

(1) How do early years educators recognise and value children's signs of learning in multicultural classrooms, particularly children who are living with disadvantage and/or are in the early stages of learning English?
(2) How might early years educators' observation, documentation and assessment of children's learning be enhanced using digital documentation?

Methodology

Ethnographic case studies were carried out in three early years settings in inner-city areas with high levels of socio-economic disadvantage in London, England. The sites were

Table 1. Summary of case study settings.

Setting name	Hargrave Primary School	Burrell Nursery School	Tree House Nursery
Setting type	Early years unit within a state maintained primary school	State maintained nursery school and children's centre	Private childcare provider
Age of children	3–5 years	2–5 years	10 months – 5 years
Number of children (Approx.)	90 children across three groups	70 children across three groups	85 children across three groups
Notes on diversity (taken from Ofsted reports)	EAL, SEN, disadvantage and proportion of children from minority ethnic backgrounds all well above national average.	EAL, SEN, disadvantage and proportion of children from minority ethnic backgrounds somewhat above national average.	EAL, SEN, disadvantage and proportion of children from minority ethnic backgrounds below national average, but some cultural and linguistic diversity.

chosen purposively to reflect high levels of diversity (social, cultural, linguistic and ethnic), and to represent a range of types of early education provision (see Table 1). The fieldwork took place over six months, with research visits to each setting once a month.

In each setting, we worked closely with two educators who had day-to-day responsibility for the observation and documentation of children's learning. The research adopted a participatory design, involving these educators as co-researchers of their everyday observation and documentation practices, and blending their perspectives with the views of children and parents. This approach supported inclusion of the many 'voices' of those involved in documentation, whilst expanding the notion of voice by recognising that all communication is multimodal.

The fieldwork unfolded in four phases. In Phase 1, semi-structured interviews with educators and observations about their daily practice provided insights into each setting's paper-based and/or digital formats for documentation. In Phase 2, educators in each setting were asked to identify three case study children who had fewer documented observations than other children in their group and who were representative of each setting's particular patterns of diversity. These nine children were observed in a range of play-based contexts and examples of their documentation were collected. Parents of the case study children were asked to complete an open-ended questionnaire inviting their views on their child's documentation. To seek the children's perspectives, we shared the children's documentation with them, and video recorded these interactions for later analysis of the children's silent and spoken responses. In Phase 3, each setting was given an iPad Mini and educators were asked to video record instances of the case study children's play. We subsequently viewed the video recordings with the educators and video recorded these review sessions. In Phase 4, we held reflective interviews with educators to probe their views on the possibilities and constraints of digital documentation, any implications for their future practice, and their experiences of involvement in the participatory study.

Data collection and analysis were framed by a multimodal perspective (Kress 2010; Bezemer and Kress 2016) with the aim to notice and make visible children's many and varied signs of learning, including their silent meaning making (e.g. gesture, gaze, movement, use of objects) as well as their use of language(s). A multimodal approach was particularly apt for researching classrooms with high levels of linguistic and social diversity due to its focus on meaning making beyond language. Thematic analysis (Braun and Clarke 2006) across the multiple datasets identified key themes in relation to the research

questions, namely what does and does not get recognised as signs of learning in early years classrooms. This offered insights into the opportunities and constraints of using digital systems in the observation and documentation of young children's play.

The project was guided by BERA Ethical Guidelines for Educational Research (British Educational Research Association 2018), and National Centre for Research Methods guidance on *Ethical Regulation and Visual Methods* (Wiles et al. 2008). Institutional ethical approval was granted prior to undertaking the research and we remained constantly alert to the children's wellbeing as part of our responsive ethical stance to issues as they occurred moment-by-moment in the field (Flewitt 2005a). The names of all individuals and settings have been changed, and images of children have been anonymised.

Findings

In this paper, we focus on one case study child from each setting to highlight key themes that emerged across the data. Our discussions with educators offered insights into the traits and characteristics of children who were considered harder to observe than others. One educator described the case study children as typically 'flying under the radar' compared to those she referred to as 'star children', who were considered easy to observe and whose learning was more fully documented.

We supported the educators to reflect critically on their documentation practices, to identify which children they might inadvertently privilege or disadvantage, and to focus on these children as part of the research. The case study children were subsequently chosen by each of the three settings because they had fewer observations and because educators had agreed that they found it difficult to identify these children's learning.

A common trait across the case study children was that they did not communicate confidently in English, with seven of the nine case study children speaking English as an Additional Language. Children with fewer documented observations also tended to spend extended periods playing outside, in physical play, and not to seek adult interaction or produce things that served as traces of their learning (e.g. drawings, paintings).

Conversely, the participating educators reported they found it much easier to observe and document the learning of children who were confident communicators in English, who predominantly played indoors, readily joined in adult-led activities, sought adult attention and produced tangible traces of their learning. See Table 2 for a summary of

Table 2. Traits and characteristics of children who had fewer or more observations.

Children with fewer observations	Children with more observations
Quiet	Highly verbal
Shy	Outgoing
Not confident communicating in English	Speaks English fluently
Spend lots of time outdoors	Mainly plays inside
Runs a lot / highly physical	Likes quiet / still activities
Does not join group activities	Joins group activities
Does not produce 'work' (drawings etc.)	Produces lots of 'work' (drawings etc.)
Independent / does not come to adults often	Dependent on adults / seeks adult attention
Many absences	Few absences

the traits and characteristics of children who had the least or the most observations in each setting.

To illustrate the varied documentation practices we encountered, we present three vignettes of case study children. Each case highlights themes relating to the potentials and challenges of digital documentation for democratic assessment.

The value of sharing documentation

Three-year-old Aran attended the early years unit in Hargrave Primary School, where his older siblings were also educated. In this unit, all staff made observations of children's learning and these were collated into a 'Special Book' for each child. The Special Books were individual A3 paper scrapbooks featuring the child's name and photograph on the front and containing observations relating to things the child had done or created while in the early years unit, such as drawings, paintings and collages alongside photographs of the child engaging in activities. The Special Books contained brief notes written by educators about what each child had done, often implicitly related to an aspect of the English Early Years Foundation Stage (EYFS) (e.g. Figure 1: 'Aran rote counts objects 1:1 to 6'[1]). Formal aspects of the EYFS, such as phonics and number, were given particular emphasis, possibly influenced by the Primary School of which the early years unit was a part. However, one of the educators expressed unease about 'boxing the children' in developmental age bands, and was concerned that standardised assessment criteria 'confine what you're looking at'.

The Special Books were stored on high shelves in areas of the classroom where teachers kept other paperwork, out of reach to children and parents. The books were not routinely given to parents or children to take home due to concerns about them getting lost or damaged. However, once every half term the setting would put Special Books on display for children and parents to look at together during the final hour of the school day. Whilst all parents were invited to these events, work and other commitments meant not all parents were able to attend. At the end of the Reception year, each child was given their Special Book to take home and keep. This setting had previously trialled a digital learning journey system but staff had mixed feelings about its effectiveness. After one staff member lost observations due to a technical problem, the team had decided to return to paper-based documentation.

Aran and his family spoke Kurdish and English at home, but the educators commented that Aran was extremely quiet within the setting and that this posed challenges for observation and documentation. As one educator commented:

> He works so quietly … just quietly gets on with it … He's easy to overlook, because there's other children that will come in and take your attention … He doesn't seek attention. In fact he avoids it.

When asked about Aran's home language, the educators thought he probably spoke Arabic but they were not sure. When looking through his Special Book with the researcher, they commented that although there were pictures of models he had created and descriptions of his gross-motor development, there were 'no language obs[2] obviously'.

When Aran shared his Special Book with us, he was quiet, looking intently at the pages of his book, and nodding or shaking his head in response to our questions or comments.

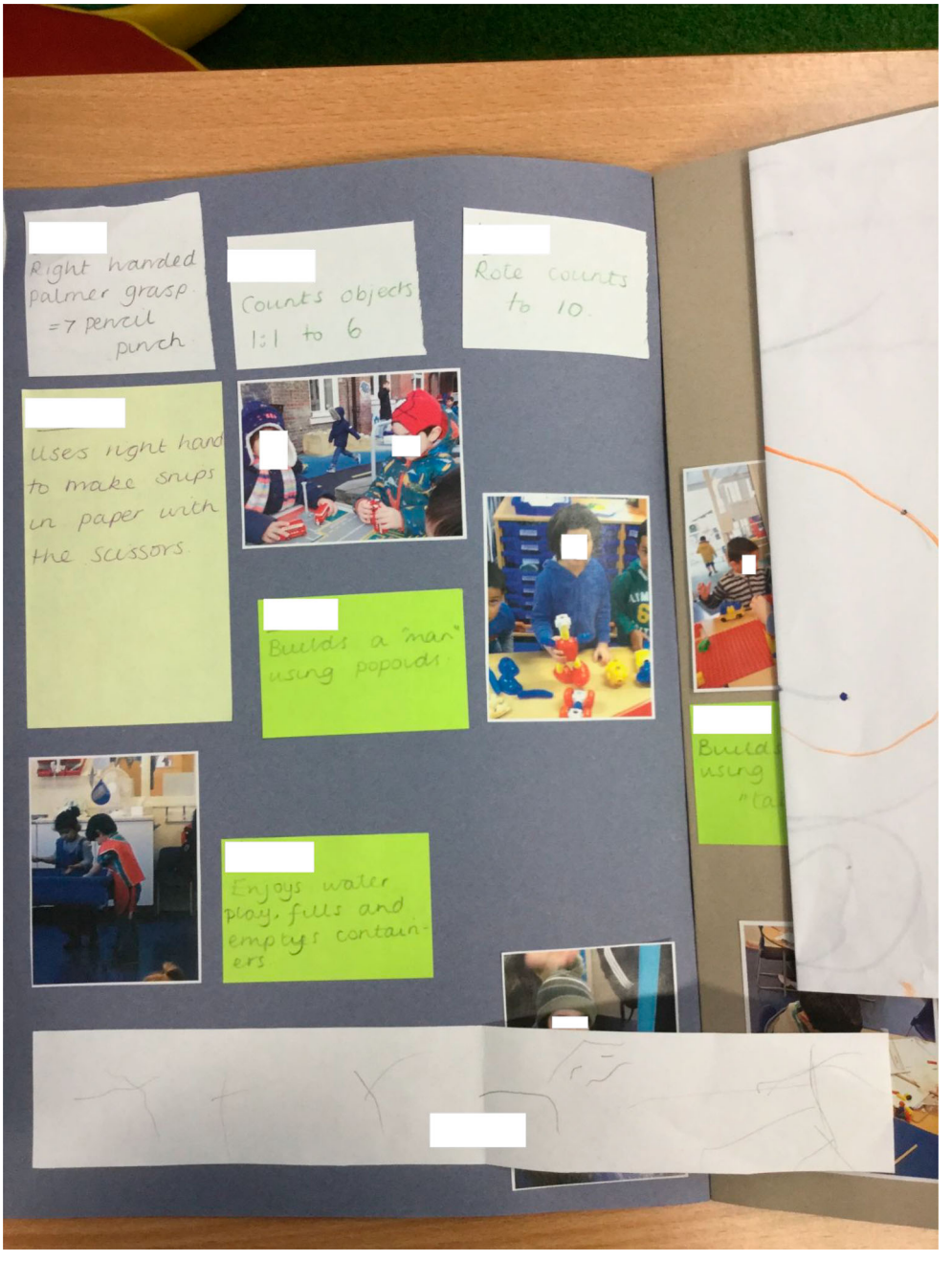

Figure 1. Aran's Special Book.The image shows a page in Aran's special book, consisting of short written observations and photographs of Aran engaging in play. In one of the central images, he is playing outside wearing a knitted spiderman hat.

One photograph drew his particular attention, and he pointed to himself wearing a knitted Spiderman hat, saying quietly, 'That hat is mine' (see Figure 1). The significance of this moment became clearer during discussion with Aran's mother at the end of the

school day, who explained that she had made the hat herself after learning to knit at a parent workshop organised by the school, making it particularly special both to Aran and to her.

Aran's mother said she valued the Special Book as a way of showing Aran's progress, but mentioned she had never added her own comments or pictures to Aran's Special Book because she had not been asked to: 'I guess that's because the book is meant to tell us about what the child is doing in school, not in any other place!' The educators confirmed that they did not invite parents to add to Special Books, but they thought some parents might be willing to do this if asked.

The example of Aran's hat illustrates that documentation can be an important tool for recording things that are seemingly small but highly significant to children. The episode shows the value in sharing documentation with children themselves, particularly visual material such as photographs, and the ways in which this can support exchanges with children who are typically very quiet and/or may not be confident communicators in English. The Spiderman hat also highlights the importance of seeking parent perspectives in order to gain insights into children's experiences and life-worlds beyond the early education setting.

The value of video documentation

Four-year-old Jemma had attended Burrell Nursery School for almost two years. Having an August birthday, she had originally been one of the youngest in the cohort (owing to the September school starting date in the English school system). Due to some concerns about her development and intermittent attendance raised by the nursery, Jemma's parents had chosen to defer her entry to Reception with support from the nursery. During the research period, paediatric assessment identified Jemma as having developmental delay.

Burrell Nursery School had a Froebelian ethos and prioritised play-based learning. All staff took responsibility for writing short observations of children's play during each session and these were compiled into folders alongside EYFS statements. The folders were stored in the nursery office, and their primary use was formative and summative assessment against EYFS targets, but they were occasionally shared with each child's mother and/or father during Parents' Evenings. They were given to each child's prospective primary school, rather than to the child or family, when children left nursery.

In addition to these assessment records, Burrell Nursery created a 'Memory Book' for each child using A3 paper scrapbooks. Whilst similar in appearance to the 'Special Books' in Hargrave School, Memory Books were stored at child-height within the nursery classrooms and were available for children and families to access independently every day. The cover of each Memory Book featured a photograph of the child with their family and contained the following description on the opening page:

> This is your child's Memory Book. It belongs to them and is meant as a way of collecting thoughts and ideas that are important to them … The adult role is to record the child's voice, gestures, and facial expressions at the time of entry and whenever the child is revisiting their book. If there is an experience,

> achievement or object that they would like to include from home, please support them to do this. This should prove a powerful link between home and school … and a valuable way of ensuring children's voices are heard when adults are planning and observing children.

Children were supported to add to their Memory Books by taking photographs in nursery with a designated children's camera, which was accessible for children every day. Educators helped children to print their photographs using a mini-printer stored at child height and encouraged children to stick these directly into their Memory Books in whatever way they liked. The educators wrote short explanations alongside, often scribing the child's own words or describing their actions. For example, in Figure 2: 'I took this photo of Jemma playing with the rice. Together we found her memory book and stuck photo in. Big smile. "Jemma. The rice". Huge smile, runs back to rice'. When Jemma shared her Memory Book with us, she spent several minutes turning through the pages and offered comments about the photographs, for instance pointing and saying 'That's me' and 'I made it'. Jemma's mother spoke positively

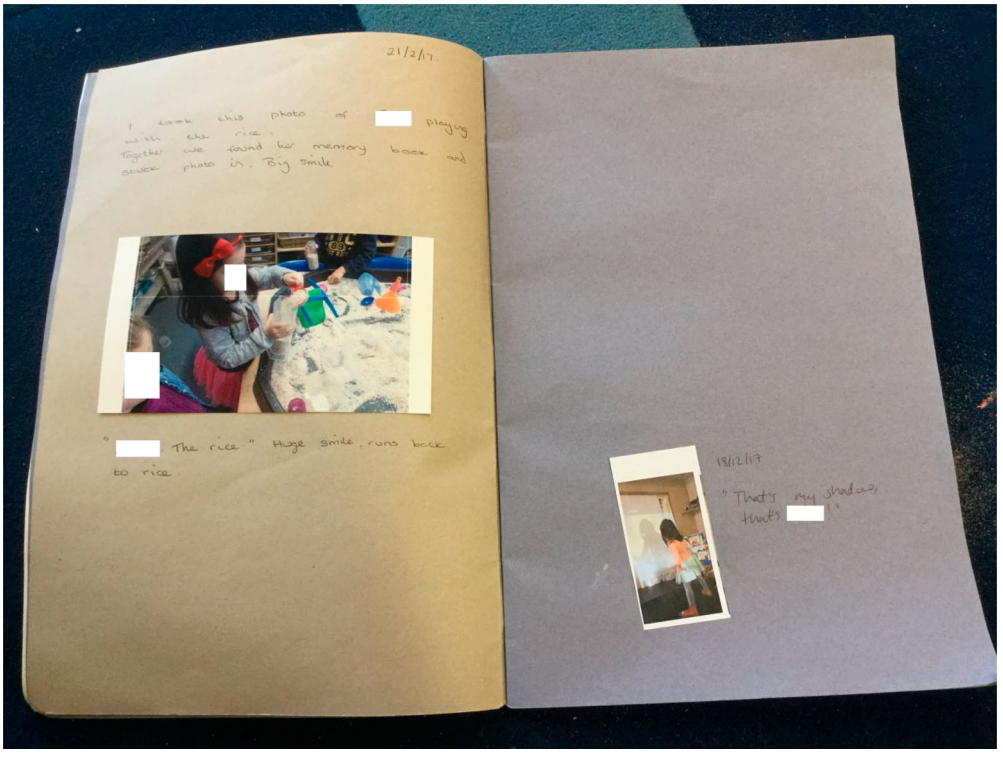

Figure 2. Jemma's Memory Book.The image shows two pages from Jemma's Memory Book. On the left page is a photograph of Jemma scooping rice into a container accompanied by a teacher's written observation and Jemma's scribed speech. On the right page is an image of Jemma and her shadow stuck in at an angle, with a short extract of her speech.

about the Memory Book, which she intended to keep for Jemma to look back at when she is older.

Jemma and her family spoke Nepali and English at home. The educators at Burrell Nursery School commented on her developing English and the issues it presented for documenting learning:

> It's been hard until recently to judge where she is cognitively because she's had so little language and has struggled to attend in small groups. But because her attendance had been so sporadic and English is her second language, then actually it was very difficult to unpick.

A further challenge the educators identified was that Jemma spent a lot of time playing outside and that 'her attention, particularly in adult-led things, has been very fleeting', resulting in Jemma having fewer documented observations than other children.

As part of the research, educators at Burrell Nursery were asked to make videorecorded observations of the case study children. Typically, video was not routinely used to record observations in this setting. Like Hargrave School, they had considered using a commercial digital documentation system, but were worried about technical issues.

One educator's video recording featured Jemma engaging in a group music activity in the garden. A peripatetic music teacher played the song 'Sleeping Bunnies' on her guitar while several children joined in with the corresponding actions, pretending to be asleep then waking up and jumping. The camera had been focused on Jemma, who initially stood back and watched before joining in the actions with a serious expression. On viewing the video together, the educator who had recorded the clip commented that Jemma 'doesn't look very involved in the music session, going through the motions, isn't she?' However, on repeated viewing the educators noticed that she seemed to be watching a friend closely and taking cues from her friend's movements before joining in. The educator observed, 'I think you see more when you are watching it back'. A second educator commented, 'You are able to focus on just that one child, aren't you, whereas if you are out there … you would definitely be distracted by everything else that's going on'. A third educator reflected, 'It just slows down your thinking to just looking into what she's actually doing rather than just in the, you know, in the moment, you might not think about the detail'.

Whilst the Burrell Nursery Memory Books strongly valued child and parent voices, the educators recognised that written and photographic observations offered limited possibilities particularly for noting quieter children's learning. The educators spoke about the potential of video to enhance their existing practice, and their intention to create video observations to put quieter children 'on the radar' of all staff members. They also recognised the potential of sharing video recordings with individual children to prompt their reflection on activities.

The value of documentation designed for children

Three-year-old Felix attended Tree House Nursery, where he was one of the youngest in his group. This nursery took inspiration from Reggio Emilia and framed their practice around project-based creative enquiry. Prior to our contact with this setting, educators

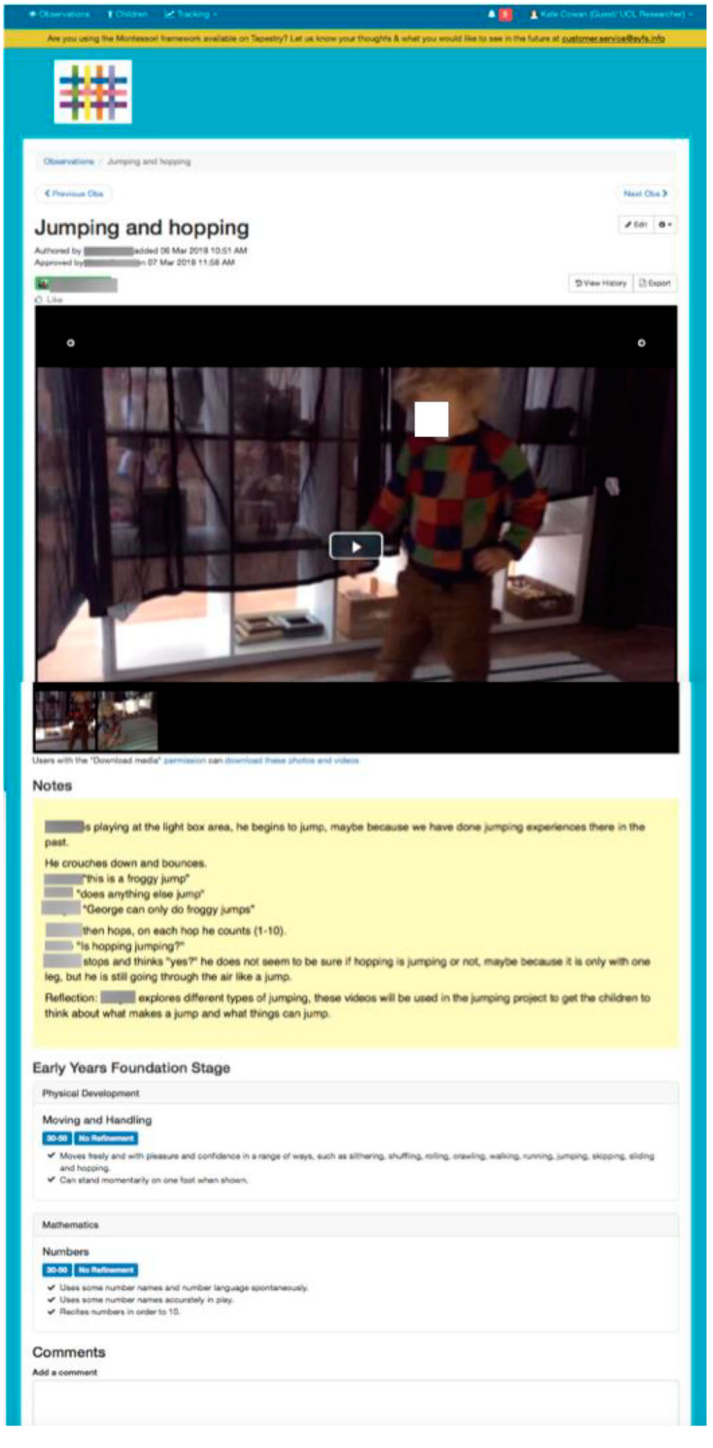

Figure 3. Felix's Tapestry Profile.The image shows a screenshot of the digital documentation system Tapestry. The entry is entitled 'Jumping and hopping' and features a video still of Felix, followed by written notes made by the educator, links to the EYFS and a space for comments.

had opted to use the digital documentation system Tapestry to record and share observations, and were already adept at taking photographs and videos of children's play on mobile devices and adding written observations that were uploaded to the Tapestry system (Figure 3).

Tapestry invites educators to 'tag' one or more child in an observation, linking it to each child's individual Tapestry profile. The educator can also link observations to EYFS statements and, using this data, can perform tracking and analysis for individuals as well as groups of children. However, one educator suggested that many of the most exciting moments of learning were difficult to link to EYFS assessment statements, so they did not always use this feature.

Family members registered with Tapestry receive an email whenever a new observation of their child is added. These can be viewed remotely, and families can add comments and upload their own observations. Tree House Nursery particularly valued how this system helped them to keep in touch with families, many of whom were working parents. The Tapestry profiles were not readily accessible to children in the nursery, although sometimes children were invited to take photographs that might be uploaded for them. At the end of each child's time at Tree House Nursery, a printed version of the child's Tapestry profile was given to their parents, including written and photographic observations but with video removed. Videos of the children could be downloaded by parents before the child's profile was deactivated.

One educator at Tree House Nursery spoke about how she felt Tapestry saved considerable time compared to paper-based documentation, and staff had made deliberate and creative choices about how they could adapt the digital system to their Reggio Emilia ethos. For instance, they had added a 'Reflection' section after each written observation (Figure 3) to facilitate their use of documentation for planning. As well as using Tapestry for individual learning, they had found a way to adapt it to document on-going project-based enquiries by using the name of a project as an additional 'child', then using the project name to tag all material relating to the group project. For instance, the observation in Figure 3 was tagged twice: once as part of an on-going 'Jumping Project' exploring movement and once on Felix's individual profile. As one educator at Tree House Nursery pointed out: 'We are using [Tapestry] in a different way than most settings are using it'.

Felix was identified as a case study child in this setting because educators considered him to be quiet and shy, often avoiding adult-led activities and choosing to play alone, which had resulted in fewer observations: 'Either he won't join in because the group's there or when they come he'll leave. Yeah, so that's been a struggle'. The educators commented that Felix had initially not settled easily in Tree House Nursery, and they had found Tapestry helpful for communicating with Felix's parents during this time. One educator explained:

> I think [Felix's parents] felt he would cry when he came in and I think they felt he would be crying all day, and they didn't know what was going on. So Tapestry allowed us to show them, you know, very quickly, that that wasn't happening.

Felix's mother said she appreciated the way that Tapestry helped keep her 'in the loop' and was able to 'bridge the gap' between home and nursery. However, she added that she never made comments or uploaded observations from home because she thought other parents might see them and find them irritating.[3]

When we shared Felix's Tapestry profile with him on an iPad, he was initially hesitant about touching the screen and did not seem to know how to access the observations himself. His confidence grew as we demonstrated how to swipe through photographs and tap videos to play them. As we looked together, Felix pointed to pictures, smiled, laughed, exchanged glances with us and offered several comments, for example, 'There's me! There's me again. I'm hopping on one foot'. He was particularly keen to watch videos and engaged intently with his documentation for more than twenty minutes. Despite this enthusiasm, aspects of the Tapestry design presented challenges for him as the on-screen navigation was reliant on users being able to read ('Play Video') and/or having sufficient fine motor control to tap very small icons. Furthermore, observations could easily be erased by accidentally tapping the 'delete' icon.

Overall, in this study we found that whilst digital documentation is in some ways highly accessible for children, who enjoyed viewing and talking about audio-visual recordings of their activity, the Tapestry system is primarily and historically designed for adults (educators and parents). Its design (at the time of this study) limited the extent to which young children could engage with, contribute to and reflect on their own documentation.

Discussion

Our first key finding, as illustrated through these vignettes, was that whilst educators in all three early years settings saw value in observing and documenting young children's play, there were significant differences across the settings in terms of:

- what form documentation took (paper-based or digital)
- when the documentation was made accessible to children and parents (occasionally or regularly)
- how the documentation was accessed (in person or online)
- who was permitted or encouraged to contribute to documentation (educators, children, parents)

For example, the Special Books in Hargrave Primary were predominantly presented as the educators' property and responsibility, whereas the Memory Books in Burrell Nursery were created mainly by and for the children, whilst Tree House Nursery emphasised the particular value of Tapestry for strengthening communication with parents. These different day-to-day practices highlight more profound differences in *who* and *what* the primary purpose of documentation was considered to be, and this reflected each setting's context, ethos and priorities (Flewitt and Cowan 2019).

Secondly, the case studies offered valuable insights into the characteristics and traits of children who were identified as harder to observe and who had fewer documented observations than their peers. As summarised in Table 2, educators encountered particular challenges in observing and documenting the learning of children who did not communicate confidently in English, children who spent extended periods playing outside or in highly physical play, children who did not seek adult interaction and children who did not produce things that acted as traces of their learning. This seemed to be exacerbated by summative assessment pressures and the developmental goals of the EYFS, with

educators suggesting that developmental age bands could be restrictive, and that it was difficult to link project-based work, particularly rich moments of learning, to specific assessment statements. This finding supports Lash and Castner's (2018) suggestion that many early years educators experience a tension between deep-seated pedagogical beliefs about children's holistic learning and the current downward pressure of a developmental, assessment-driven educational agenda.

Our third finding was that digital documentation practices involve both potentials and constraints for democratising assessment. The example of Aran's Spiderman hat highlights the importance of listening carefully to young children and paying attention to moments that may seem small or inconsequential. Although Aran was typically very quiet, the personal and visual content in his Special Book prompted him to volunteer information about himself. The relevance of the hat and Aran's comment required contextualisation from his mother, emphasising the value of including both child and parent voices in documentation. A digital system could potentially support such dialogue with families through providing an asynchronous online format that can be accessed anywhere and shared more easily than a physical book. However, digital systems are not an automatic guarantee for supporting parent voice in documentation (as Felix's mother illustrated). Such practices require parent partnerships and dialogue to be embedded within the setting's broader ethos and practices, whether digital or non-digital tools for documentation are used. Consideration must also be given to the possible disparity between different families' access to digital technologies.

In Burrell Nursery School, the Memory Books strongly emphasised the importance of the child's voice. Making the Memory Books routinely accessible to children supported and fostered their agency, and both children and parents were actively invited to contribute. In this setting, video had not been part of the educators' documentation practice, but they found it illuminating when it was introduced during the research. For instance, when re-watching a video of Jemma engaging in a group activity, educators appreciated the deeper insights they gained by re-watching episodes multiple times and being able to focus on individual children within a larger group. They further highlighted the benefit of slowing down attention to focus on the detail of interaction, such as a child's gaze and movement, which would likely be missed during 'real-time' observation. However, they also noted that video observations presented challenges, such as time needed to record and re-watch material, and video recordings could not be included in the children's paper-based Memory Books. One outcome of this setting's involvement in our study was a commitment to re-think how they might include video in their documentation practices in ways that they could share video with children and parents.

In Tree House Nursery, video was routinely included in children's documentation through use of the digital documentation system Tapestry. Felix enjoyed reviewing the videos and photographs in his profile, and the remote accessibility of his documentation had been helpful for his family during his initial period of settling in the nursery. However, at the time of the study, the Tapestry system was not designed for children to access or add to their documentation themselves. Felix showed hesitation and some frustration interacting with the digital interface, requiring adult support and encouragement since it included features such as written instructions and small icons that needed to be tapped precisely to navigate through the content. This suggests that although digital documentation systems present new possibilities for engaging children in the processes

of their own learning and making content more easily accessible to families remotely, the child's agency in accessing and adding their voice to digital documentation is constrained by adult-oriented design.

Conclusions and implications

This research offers insights into contemporary early years assessment practices in England, including the rapid but not yet wholesale uptake of digital documentation systems for recording and sharing children's learning. Although a small-scale study conducted in one country, our findings have wider implications regarding the potentials and challenges emerging from the increasing uptake of digital documentation in ECE globally, with consequences for supporting democratic, inclusive and participatory assessment practices.

The case studies suggest that many children's learning falls outside the current repertoire of what traditional observation and documentation practices capture. In this study, conducted in the particular ECE context of England, this was due in part to the narrow lens of statutory assessment requirements that can constrain what is recognised and valued as signs of early learning. Our findings suggest that children with certain traits and characteristics may be particularly disadvantaged by current documentation practices in England, as shown in Table 2. Educators recognised that these children's highly diverse and often subtle signs of learning often passed unnoticed. This ran the risk of many children's capacities being overlooked and rendered invisible, whilst other children's learning was more carefully attended to – for example, those who tend to seek adult attention, produce tangible signs of learning (drawings, models etc.), or who readily communicate verbally and in English. In short, if fleeting and subtle signs of learning are not recognised then they cannot be valued and nurtured.

Yet we know from extant research evidence that children's meaning making goes far beyond speech, and is expressed in complex combinations of movement, gesture, gaze, facial expression, images and manipulations of objects (Bezemer and Kress 2016). The findings of our research call for raised awareness of children whose multimodal signs of learning may be harder to observe and document in traditional paper-based documentation, and calls for forms of observation and documentation that draw attention to the subtleties of children's silent and embodied signs of learning, as well as their more tangible displays.

Due to its qualities as a real-time, fine-grained and shareable record (Jewitt 2012), digital video offers rich potential for focusing on the multimodal and often ephemeral complexity of young children's learning (Cowan 2018; Flewitt 2006). In this study, we found that re-watching short digital video recordings of children at play can help to focus educators' attention on aspects of learning that are challenging to capture and document with traditional tools such as pen and paper. Educators appreciated the ways in which video made visible learning that is expressed in dynamic and fleeting ways, and indicated that video observation supported a deeper level of reflection and attention to details they could not have noticed in the moment. They also appreciated how video observations could be shared and discussed with colleagues and their potential for sharing with parents. However, watching and re-watching video recording takes time and requires collaborative pedagogic approaches that value careful and unhurried

listening to young children. This may be at odds with high child-to-adult ratios in ECE and with current outcome-driven educational agendas that place pressure on educators to achieve prescribed child learning outcomes (Clark 2020). Looking to international approaches such as Reggio Emilia's 'pedagogical documentation' and New Zealand's 'learning stories' reminds us of democratic alternatives to England's current early years assessment discourse (Cameron & Moss, 2020).

Our research suggests that digital documentation may additionally offer potential for democratising early years assessment through supporting the inclusion of parent voices. As the example of Aran's hat illustrates, there is value in communicating with families to gain insights into children's interests and experiences beyond ECE settings. As others have argued (Higgins and Cherrington 2017; Gallagher 2018), online digital systems may support two-way communication with parents and families through enabling documentation to be accessed and added to remotely at times more convenient to families. However, digital documentation alone will not automatically facilitate dialogue and must be embedded within a wider ethos and cultural context of valuing child and parent voices in documentation and assessment. To achieve this, educators should be supported to reflect critically on their current documentation practices and to think creatively about how digital documentation might be adopted in their particular setting and ethos in ways that facilitate and enrich their planning and pedagogy (Flewitt and Cowan 2020).

Our research found that children enjoyed engaging with their paper-based and digital documentation, and that creating opportunities for shared viewing of their documentation prompted rich interaction, both through spoken comments and unspoken exchanges (such as smiling, laughing, pointing and gaze). This may be because the content was personal to the child and was made accessible through visual material such as photographs, which do not require a reliance on reading print. Viewing video of themselves and their peers appeared to be particularly engaging for the children, which suggests that the capacity to include moving image and sound in digital documentation presents new possibilities for capturing and sharing moments of learning in ways that are especially meaningful to young children. This seems to have particular potential for children who, like those in the case studies, were identified as being quiet or who were in the early stages of learning English. As Formosinho and Pascal (2017) argue, there is value in documentation which captures and interweaves the voices of educators, parents and children, where 'voice' should be considered broadly, beyond speech, to acknowledge the multimodal nature of communication. We suggest that the highly visual nature of digital documentation, including digital video, presents new possibilities for documenting multimodal moments of learning that are hard to capture in traditional means, for sharing these with parents, and for making children's documentation more accessible and inclusive.

However, whilst digital tools may bring new democratic potentials for the observation and documentation of learning, we must also consider their constraints. Our research found that while digital documentation systems may support educator-parent dialogue and arouse children's interest, at the time of this study, digital systems design did not pay sufficient attention to child agency in contributing to their own documentation. Digital documentation systems have been designed primarily for adults (for educators and, to a lesser extent, for parents), with their design often limiting the ways in which

children can independently access and add to their documentation. This risks the child's voice being lost or marginalised as documentation shifts from paper-based to digital forms.

Since this research was carried out and shared with them, Tapestry have added a new 'Child Login' feature, enabling children to access and add their own observations within a simplified interface. This is a promising development for engaging children in their own documentation and making use of digital affordances. Further research is therefore needed to scrutinise digital documentation systems, including the discourses shaping their design and the extent to which they support children's agentive participation in their documentation. Such findings could then be used to work with digital software companies and continue development of accessible, child-friendly documentation interfaces that support children to become active participants in meaningful assessment with parents and educators. Our findings call for collaboration between education researchers, educators and the designers of digital documentation systems so that these comparatively new tools can support democratic and inclusive assessment practices, where the affordances of digital systems are exploited to ensure *all* children's diverse forms of meaning making are recognised and celebrated.

Notes

1. '1:1 to 6' refers to number correspondence, relating to specific Mathematics learning goals in the EYFS. Children and parents are unlikely to be familiar with this level of curriculum detail.
2. Short for 'observations'
3. Other parents would not have been able to see observations added from home and would only have seen comments if these were added to group observations. This shows some confusion about the Tapestry system and privacy.

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References

Bath, Caroline. 2012. ""I Can't Read It; I Don't Know": Young Children's Participation in the Pedagogical Documentation of English Early Childhood Education and Care Settings." *International Journal of Early Years Education* 20 (2): 190–201. doi:10.1080/09669760.2012.715242.

Bezemer, Jeff, and Gunther Kress. 2016. *Multimodality, Learning and Communication: A Social Semiotic Frame*. London: Routledge, Taylor & Francis Group.

Bradbury, Alice, and Guy Roberts-Holmes. 2018. *The Datafication of Primary and Early Years Education: Playing with Numbers*. Foundations and Futures of Education. Abingdon, NY: Routledge.

Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. doi:10.1191/1478088706qp063oa.
British Educational Research Association. 2018. *BERA Ethical Guidelines for Educational Research*. London: BERA.
Carr, Margaret. 2001. *Assessment in Early Childhood Settings: Learning Stories*. London: P. Chapman Pub.
Cameron, Claire, and Peter Moss. (Eds). 2020. *Transforming Early Childhood in England: Towards a Democratic Education*. London: UCL Press.
Clark, Alison. 2020. "Towards a Listening ECEC System." In *Transforming Early Childhood in England: Towards a Democratic Education*, edited by Claire Cameron and Peter Moss. London: UCL Press, pp. 134–150.
Cowan, Kate. 2018. "Visualising Young Children's Play: Exploring Multimodal Transcription of Video-Recorded Interaction." Doctoral Thesis, UCL Institute of Education.
Cowan, Kate, and Rosie Flewitt. 2020. "Towards Valuing Children's Signs of Learning." In *Transforming Early Childhood in England: Towards a Democratic Education*, edited by Claire Cameron and Peter Moss. London: UCL Press, pp. 119–133.
Dahlberg, Gunilla, Peter Moss, and Alan R. Pence. 1999. *Beyond Quality in Early Childhood Education and Care: Postmodern Perspectives*. London, PA: Falmer Press.
Flewitt, Rosie. 2005a. "Conducting Research with Young Children: Some Ethical Considerations." *Early Child Development and Care* 175 (6): 553–565. doi:10.1080/03004430500131338.
Flewitt, Rosie. 2005b. "Is Every Child's Voice Heard? Researching the Different Ways 3-Year-old Children Communicate and Make Meaning at Home and in a Pre-School Playgroup." *Early Years* 25 (3): 207–222. doi:10.1080/09575140500251558.
Flewitt, Rosie. 2006. "Using Video to Investigate Preschool Classroom Interaction: Education Research Assumptions and Methodological Practices." *Visual Communication* 5: 25–50.
Flewitt, Rosie, and Kate Cowan. 2019. Valuing Young Children's Signs of Learning: Observation and Digital Documentation of Play in Early Years Classrooms. The Froebel Trust.
Flewitt, Rosie, and Kate Cowan. 2020. "Guidance for Practitioners on Digital Documentation." *The Froebel Trust*. https://www.froebel.org.uk/app/download/17190176/froebel-guidance-for-practitioners-research-repor1.pdf.
Formosinho, Julia, and Christine Pascal. 2017. *Assessment and Evaluation for Transformation in Early Childhood*. 1st ed. London: Routledge.
Frans, Niek, W. J. Post, C. E. Oenema-Mostert, and A. E. M. G. Minnaert. 2020. "Preschool/Kindergarten Teachers' Conceptions of Standardised Testing." *Assessment in Education: Principles, Policy & Practice* 27 (1): 87–108. doi:10.1080/0969594X.2019.1688763.
Gallagher, Aisling. 2018. "E-Portfolios and Relational Space in the Early Education Environment." *Journal of Pedagogy* 9 (1): 23–44. doi:10.2478/jped-2018-0002.
Higgins, Amanda, and Sue Cherrington. 2017. "What's the Story?: Exploring Parent–Teacher Communication Through EPortfolios." *Australasian Journal of Early Childhood* 42 (4): 13–21. doi:10.23965/AJEC.42.4.02.
Hooker, Tracey. 2019. "Using EPortfolios in Early Childhood Education: Recalling, Reconnecting, Restarting and Learning." *Journal of Early Childhood Research* 17 (4): 376–391. doi:10.1177/1476718X19875778.
Jewitt, Carey. 2012. *An Introduction to Using Video for Research*. In. Unpublished.
Khoo, Elaine, Rosina Merry, and Timothy Bennett. 2015. ""I Want to Say … ": Privileging Young Children's Voices in IPad-Supported Assessment for Learning." *Early Childhood Folio* 19 (1): 3–9. doi:10.18296/ecf.0002.
Knauf, Helen. 2015. "Styles of Documentation in German Early Childhood Education." *Early Years* 35 (3): 232–248. doi:10.1080/09575146.2015.1011066.
Kress, Gunther. 1997. *Before Writing: Rethinking the Paths to Literacy*. London: Routledge.
Kress, Gunther. 2010. *Multimodality: A Social Semiotic Approach to Contemporary Communication*. London: Routledge.

Lash, Martha J., and Daniel J. Castner. 2018. "Stories of Practice: The Lived and Sometimes Clandestine Professional Experiences of Early Childhood Educators." *Contemporary Issues in Early Childhood* 19 (2): 93–96. doi:10.1177/1463949118784437.

Lewis, Lyn. 2015. "A Critical Reflection on Eportfolio as a Teaching Tool." *New Zealand Journal of Teachers' Work* 12 (2): 115–130.

Lupton, Deborah, and Ben Williamson. 2017. "The Datafied Child: The Dataveillance of Children and Implications for Their Rights." *New Media & Society* 19 (5): 780–794. doi:10.1177/1461444816686328.

Reynolds, Bronwyn, and Katia Duff. 2016. "'Families' Perceptions of Early Childhood Educators' Fostering Conversations and Connections by Sharing Children's Learning Through Pedagogical Documentation." *Education 3-13* 44 (1): 93–100. doi:10.1080/03004279.2015.1092457.

Rinaldi, Carlina. 2006. *In Dialogue with Reggio Emilia – Listening, Researching and Learning*. Abingdon: Routledge.

Rintakorpi, Kati. 2016. "Documenting with Early Childhood Education Teachers: Pedagogical Documentation as a Tool for Developing Early Childhood Pedagogy and Practises." *Early Years* 36 (4): 399–412. doi:10.1080/09575146.2016.1145628.

Tapestry. 2021. "Tapestry Online Learning Journal." May 2021. https://tapestry.info.

Whitebread, David, and Sue Bingham. 2012. "School Readiness; a Critical Review of Perspectives and Evidence." *TACTYC*, no. Occasional Paper No. 2. http://tactyc.org.uk/occasional-paper/occasional-paper2.pdf.

Wiles, Rose, Jon Prosser, Anna Bagnoli, Andrew Clark, Katherine Davies, Sally Holland, and Emma Renold. 2008. "Visual Ethics: Ethical Issues in Visual Research." *ESRC National Centre for Research Methods Review Paper*.

Williamson, Ben. 2017, January. "Decoding ClassDojo: Psycho-Policy, Social-Emotional Learning and Persuasive Educational Technologies." *Learning, Media and Technology*, 1–14. doi:10.1080/17439884.2017.1278020.