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The lamination machine and laminating as thing-power in early childhood pedagogical practice

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ABSTRACT

This article considers the different ways in which the lamination machine influences early childhood practice. By using Jane Bennett's notion of 'thing-power', we focus on how preschool teachers and preschool teacher-students use a lamination machine and why they use it. We claim that both the process of lamination and the machine have a great impact on pedagogical practices by giving power to the teachers' choices and priorities. The article contributes to the discussion on how technology and materiality become a vital part of the everyday lives of both teachers and children in kindergartens and prompts a need to highlight the use of technology in early childhood education.

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Introduction

In schools and kindergarten contexts, things, machines and other objects surround teachers and children. Examples would be pencil sharpeners (Leafgren 2013), digital technology (Chiong and Shuler 2010; Mak and Nathan-Roberts 2017; Zaranis and Synodi 2017), smartboards (Preston and Mowbray 2008) and lamination machines. Objects are used and needed in pedagogical practices to both ease and support the work of teachers and enable children to learn. This article highlights the significance of a technological device commonly used in kindergartens. Using questionnaires handed to students and teachers we set out to elaborate and further understand with our informants the practices associated with lamination technology in early childhood education.

Over the past few years, a vast body of research in the Nordic countries has fronted the child as an autonomous subject: the child as a learner, one who is situationally, contextually and discursively inscribed in early childhood education and practice (see, e.g. Bae 2005; 2012 Østrem 2012). We have also seen increasing attention to a more relational materialist approach, where the optics of research have changed to include a greater focus on place, space and materiality (see, e.g. Hultman and Lenz Taguchi 2010; Melhuus 2012; Nordtømme 2012). However, space and materiality are not new topics in early childhood education and research. We know from Fröbel and Montessori that place is essential in pedagogical practices (Seldin and Epstein 2003; Johansson 2006). Yet Moser and Løkken have claimed that there is still a lack of research concerning the importance of and meaning of space and materiality in educational processes (Løkken and Moser 2012). We focus on a specific technological object in kindergartens, which means becoming aware of how items, children and employees create new meaningful practices. We direct our attention at the interactions between teachers and object, object and teachers, which are not separated but linked together in a shifting relationship of concurrent practices.

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The lamination machine

A lamination machine is a technological device used to bind paper sheets together in between plastic. The American engineer William Barrow (1904–1967) invented the first lamination machine in 1936. Before its invention, national archives, government libraries, and museums had long tried to find ways to preserve and strengthen old and fragile documents and texts. Barrow invented and developed the lamination machine based on the construction of a hydraulic steel press, which was steam heated. The first lamination machine was huge and weighed tonnes; it was costly, and not many institutions could afford it (Barrow 1965; Roggia 2002). The technology has been developed further, and in recent years, it has become a standard in many schools and kindergartens, often placed in storerooms close to the teacher's desk and offices, hence being seen as an important pedagogical tool. When we talk about the activity of lamination, we refer to uniting layers of material by adhesive or other means. Here, we are talking about the lamination machine and the plastic product as the same technological objects. We see the process of lamination and the result or product of the lamination machine as the same.

The lamination machine and technology

The American sociologist Steven Moore claims that technology should be understood through geography: 'It is in the local history of space that the relationship of places and technology becomes concrete' (2010, 376). Places and technologies are both spatial concepts that have related structures. The quality of place includes not only concrete architecture or physical geography, but also intersubjective realities, such as quality of life (Moore 2010). The lamination machine is placed in a specific geographical context and is used by kindergarten teachers in a dialogic relationship. The kindergarten shapes technology, and at the same time, technology shapes kindergartens. Whether the technological device is placed on the side or is present, it becomes part of the experienced field of the immediate environment (Ihde 2010, 153).

From this perspective, the possibility arises to explore how technological objects become meaningful in the places inhabited by humans. However, we do not understand place either as the concept of materiality or as the technical objects carrying universal meaning. The lamination machine and other objects can be interpreted differently based on the cultural setting (Miller 2005). The concepts of space and materiality are not just physical and sensuous but have a cultural dimension, where the experience of things, space and place is bound into culturally embedded ways of sensing the physical world (Miller 2005; Nordtømme 2015).

There are many perspectives in which technology is central (Ihde 1979; Miller 2005). Generally, we use the term *technology* when we talk about modern engineering: a car, a computer or an iPhone. We often see it as progress and as giving people new opportunities. Technology enables us, yet sometimes, it constrains us in ways we sometimes have trouble imagining. They may hinder our physical movement, create irritation, or even give us great joy. They demand space and call upon us to act. Machines and technological inventions give insights into the practical orientations of the material world, and they give people the possibility to act in ways they could not have done without (Ihde 1979; Habermas 2010; Moore 2010).

Nevertheless, technology is more than constructing the most effective tool. Technologies play an active role between people and their worlds. Machines, such as the lamination machine, are used and produced within the notions of what is important, significant and meaningful (Bille and Sørensen 2019, 46). Machines demand that we use them in a particular way, and thus, technology is not neutral; it creates and requires an active relationship with the humans who use it. Therefore, we can say that machines participate in directing, mediating, translating, adapting and reorienting human action (Ihde 1979; Bille and Sørensen 2019).

Another aspect that helps us understand the relationship between humans and objects is in the use of terms such as 'assemblages', which follows the works of Deleuze and Guattari (2004),

'meshwork', as used by anthropologist Tim Ingold (2012), or 'bundles', as used by Webb Keane (2005). These concepts describe how things can be grouped, not only with objects and people, but also as assumptions, knowledge, meaning and ideas (Van Dyke 2015). With some differences, they all describe the entanglement of humans and other beings (Bennett 2010; Lenz Taguchi and Sjøbu 2010; Ingold 2012; Van Dyke 2015). People and objects intersect, change and transform over time and space. Here, technological innovations and human experience become inseparable in pedagogical practice (Ihde 1979; Habermas 2010; Van Dyke 2015; Bille and Sørensen 2019).

Place, materiality and thing-power

As mentioned, technology influences the way human beings understand and experience the world. In the concrete meeting between human beings and technology, we find questions about morality, feelings and values. The American philosopher Jane Bennett (2001; 2004; 2010) explores the values found in the concrete meeting between objects. She focuses on how humans are linked with the design and material reality of the object. Material objects have the agency to act and impact other materials, thereby producing effects in the world. Things, as well as people, act and are part of a reality where both people and things mutually influence the perception of the world (Bennett 2010). In this perspective, things become powerful because they participate in determining our expectations by setting the scene and ensuring normative behaviour. For Bennett, often without challenge, machines, technology, and technological processes are enchanting in the way that these objects and their associated activities can stimulate emotional energy. Bennett is concerned with our contemporary relationship with the world and calls for a need to better understand technology traces (Bennett 2001; Bennett 2004; Goble 2017).

Bennett and what she calls a 'naïve ontology' (2004, 349) have inspired our analyses. Her project is an ontological imaginary of things and their powers. Bennett wants to give voice to a less-specific human kind of materiality, and this is where she introduces the concept of *thing-power* to describe the vital power of human–nonhuman assemblages: 'The curious ability of inanimate things to animate, to act to product effects dramatic and subtle' (Bennett 2004, 351). Following Deleuze and Guattari (2004), Bennett states that human agency is a property of assemblages of humans and non-humans because they operate in conjunction to form assemblages (Bennett 2004). Here, she highlights what can be understood as a multiplicity of materialities shifting over time and thorough space. She pursues the actancy of things, the performative aspects which have the following:

A lively power to enter into new combinations, to make a difference and make things happen. These matter-bits are said to fall endlessly through a void, though every now and then, without warning and at no regular interval, they swerve from their downward path, bump into others, and thus form the assemblages that constitute the things around and in us. (Bennett 2004, 358)

Bennett's idea is to create a more subtle awareness and wiser intervention between humans and things. In her view, the capacity of things is not restricted to being passive; instead, things can make things happen. Things produce effects. Following Bruno Latour, she uses the term 'actant', substituting it for the more subject-centred term 'agents'. The term is a source of action; an actant can be either human or not, or most likely, it is a combination of both. An actant is neither an object nor a subject but rather an intervener. This means an operator subsists in a location at the right time and place, makes the difference, makes things happen and becomes the decisive force catalysing the event (Bennett 2010). With Bennett, the relationship between humans and objects is radically reconceptualised. Here, we are urged to think of objects and people as ontologically inseparable and entangled within mutually yet ever-shifting relationships. We share Bennett's desire to transcend Cartesian dualisms, such as subject/object and human/nonhuman and instead place the emphasis on connections rather than static entities (Van Dyke 2015). This means that we are pre-occupied with the connections between a specific machine, teachers, teacher-students and pedagogical practices in early childhood education.

Methodology

In the curriculum plan for preschool teacher education in Norway, the students are required to work in kindergartens for a few weeks every year (Kunnskapsdepartementet 2011). Their university teachers visit the students while they are attending this ‘practice-time’ to provide guidance and support. As a part of their assignments the students present, discuss and reflect on a project they have to accomplish. During quite a few of these visits it puzzled us,¹ that many of the students often commented the lamination machine. The students would talk about how they had laminated their projects, their plans and their products for the kindergartens to keep. This subtle and sometimes not so subtle contentment called for further inquiry. When the students arrived back at the university, we handed out a questionnaire. The questionnaire consisted of five questions, many of which were open-ended, allowing for more extended responses in text. Some examples of these questions include the following: Have you laminated anything? What? Why? What happens when you laminate something, and what would you not laminate? Here, 66 of 90 students replied, and quite a few of them replied with rather long extracts of text. We did not get the possibility of probing the responses that the informants gave because they were replying on a fixed sheet of questions. As a follow-up, we asked 10 experienced preschool teachers to answer the same questionnaire, of which seven replied.² Also, the teachers replied with longer stories of their interactions with the machine, and on two occasions, we received photos on our mobile phones of paper getting stuck within the machine, and a note saying: ‘Happiness my a%#&!’ as a humorous way of following up the questionnaire telling us that they had different experiences with lamination.

It is the human view of technology that is caught up in a survey. A traditional questionnaire focuses on the human experience, feelings and encounters written by students and teachers. This can be seen as contradictory to Bennett’s ‘naïve ontology’, where the starting point is the thing (Bennett 2004). However, whereas the empirical information says something about how kindergarten teachers view lamination technology, it can still be used as the grounds upon which we can enhance our understanding of the interplay between humans and things. As stated, things and people mutually influence each other (Bennett 2004). Early childhood practices are framed as inherently human-centric spaces (Osgood 2020), but with Bennett, we transfer the perspective to objects not merely as symbols of human practice and thinking, but also as ‘co-creators’. The objects, human bodies and everyday activities in kindergarten can be seen as ‘intermingling’ directing the focus to the performative aspects of the machine and what it can do in relation to the bodies it encounters (Pacini-Ketchabaw 2012).

Analysing materialities can be done in numerous ways (Juelskjær 2019). Our endeavour was to stay as faithful to the informants as possible.³ In the texts given by the students and teachers—and through the follow-up conversations—we have tracked the themes, words, verbs and/or nouns that were repeated by our informants and identified the informants’ experiences with the lamination machine as ‘thing-power’. Our analysis technique is inspired by Ryan and Bernhard’s article (2003) where they present a broad array of techniques that can be used to identify themes in an empirical material. A theme, according to Opler’s (1945) dynamic affirmations, is the activities or prohibition of activities that are found in every culture (198–99; as quoted in Ryan and Bernard 2003, 86). What is convenient with this method is that it allows for both inductive, deductive, and theoretical approaches towards the empirical material (Ryan and Bernard 2003, 88). It lets the empirical material speak for itself because it looks for indigenous categories and repetitions, similarities, and differences, so a theoretical lens on what is said is being welcomed (89–93). We have let the informants speak with their own words while looking for thing-power associated with lamination technology. Furthermore, according to Ryan and Bernhards’ prescription, we have acknowledged contradictory information and missing data and incorporated it into the analysis (91).

A thematic analysis (Ryan and Bernard 2003) focus on the linguistic expressions and repetitions of words. However, thing-power materialism insists that we try to enhance our receptivity and focus on the agential powers of the lamination machine. Bearing this in mind, we have tried to bring

ourselves as researchers fully into the research encounters, recognising that we are entangled, affected and infected by that which we embark to study (Osgood 2020). We have let ourselves become 'enchanted' (Bennett 2001) by the informants' stories, and our task has been to map a landscape of thing-power adventure together with the teachers and lamination machine. We hope this will not just recognise the entanglements but correspondingly how it cocreates power, allowing us to challenge the hegemonies and dominating understandings about technology in early childhood educational practices.

'We have even laminated it!' lamination practices in early childhood education

This lamination practice fascinated us, as did both the teachers and students' apparent enthusiasm for the technology and products manufactured by the machine. We could also observe a large number of laminated objects on the walls in the kindergartens we visited that included messages to staff, monthly plans or notes to parents. Posters on the wall were also laminated, displaying instructions and common house rules. These laminated objects often highlighted specific pedagogical content, memes, fairy tales, poems, rhymes, songs and even whole children's books that could be covered in laminated plastic layers. Quite frequently, objects from nature, such as bugs, butterflies, flowers and leaves, were laminated. The teachers would laminate pictures of the weather and prescriptions for how to rest, activity cards and photographs of the children. One informant said that she used to laminate the objects she needed to use more than once, such as diplomas and multiplication tables. The breadth of what was considered laminable was formidable.

Thing-power 1: attractiveness

When I laminate a paper or something, it just looks much nicer, it is so pretty, and becomes almost like a picture in a glass without frames.

Several informants wrote—as the one quote above shows—about how the process of lamination makes the colours of the finished and laminated product brighter and shinier. The laminated objects also become easy to see. They stick out, as the informants noted, in the otherwise grey mass of papers. Yet another of the kindergarten teachers said, 'It is bright and shiny and laminated sheets or whatever, makes you curious as to what it is'. The experience the teachers shared with us directed our attention to the matter-energy formations of paper, plastic, lamination and humans engaged in a working relationship where the groupings or compositions, as Bennett (2004) states, shift and are rearranged over time. The laminated objects have the power to plead, appeal, and invoke attention. The assemblage of paper, text, technology and teachers have the power to constitute and reconstitute what is to be appreciated, valued, cherished, and again, become meaningful and significant in early childhood practice.

Another aspect of the thing-power of attractiveness is how the informants would report great joy and satisfaction over the laminated product. One of the informants described it in the following way:

Lamination makes me satisfied, happy, and makes me more motivated to do things. It is as one becomes more engaged or involved when you laminate something.

It seemed as the whole student project became more fun altogether as one of the other students told us:

The project is so much fun! We go to the forest with the children, and we bring drawings of trees, leaves, and flowers. She has a louder, happier voice when she shouts: We have even laminated it!

As mentioned earlier, it is not only the products that become better and more attractive. The technology and the process of lamination itself seemed to be particularly attractive. The lamination machines were intuitive, accessible and easy to use, and our informants expressed great enthusiasm

and joy for it, as stated by one participant: ‘We have our own machine. I use it quite frequently, and I love it!’

According to Bennett, there is a kinship between people and things. Here, we see how a machine and its doings have the power to move teachers and students and arouse feelings, or as Bennett would term it, we could provoke a mood of enchantment in people where joyful effects feed and energise the bodies called upon (Bennett 2001; 2010). It was not only joy and happiness the teachers and students would write about. They reported great anger, irritation and frustration when paper got stuck or the result did not meet their expectations. Our examples illustrate the complex and diverse ways in which lamination and the teachers were entwined. We see the diversity because the informants and lamination process seemed to be tangled together in moments of affect (Bennett 2010). The laminating objects became attractive and prettier. The shiny surface made colours stick out, with the process of laminating and the end product making the teachers feel happy, joyful and engaged in the practice.

Thing-power 2: durability

We have stated earlier that the lamination machine was invented to preserve paper and make old documents last longer, be stronger and, thereby, become more durable (Roggia 2002). This characteristic of lamination was one of the most common reasons given by the informants in the current study. An experienced kindergarten teacher interviewed underlined durability as the main reason for laminating products when posed the question why she laminates:

The prime reason is better durability. They (the laminated products) become more robust when the children are to look at them (pictures and fact-sheets) and information can hang longer on the wall without getting ‘dogs ears’ and they do not become wet. It is possible to write with a felt-pen on top of laminated sheets, and we have done this with some of the material we use for the preschool children, and it can be used again.

In this statement, we can clearly discern that durability is a prime concern for the informant as she justifies why she chose to laminate objects. Several informants mentioned that lamination helps things remain in their original condition or shape.

According to Bennett, there is a tendency to refer all expressions back to the cultural meanings, or to the initial source invented in the object. The notion of ‘biography’ as articulated in Kopytoff’s (1986) article may be interesting here because it connects the lamination machine to questions about its original purpose. Why was it invented? How is it supposed to be used? Several of our informants strongly emphasised the significance of the lamination machine’s biography: the idea of preserving paper and making it durable. As one participant said, ‘It can be used to make things last forever. It gains eternal life’. The machine has a lively power to make things happen (Bennett 2004), and here, it both stimulated and forced its initial purpose to the fore. The inherent property of the machine demands submission or at least cooperation with its biography; as established in our informants’ answers, we may assume that this is what happens. With its biography, the lamination machine emerges as historically and culturally situated, creating effects on the different bodies using it (Pacini-Ketchabaw 2012). Effects that are situated or invented a long time ago and still forcefully but subtly interact and motivate teachers’ choices in pedagogical practices—precisely because using the machine in its ‘proper manner’ or ‘to make paper sheets last forever’—are notions that are strong and powerful.

The power of durability also makes the objects more suitable as pedagogical artefacts. The plastic coat of the laminated object makes them durable and water-resistant. According to the informants, laminated objects are especially suited and accessible to toddlers because they are robust and withstand the little ones’ chewing and tasting and therefore usable over and over again. They come in handy for small children because they are washable and therefore, more hygienic. The laminated paper sheets, letters or songs express a toughness, solidity and security that reduce teachers’ fears of giving children low-quality products that may harm them. One kindergarten teacher puts it in this way:

The children can be more active in the process or during play time and the teachers need not be so afraid that it (refers to laminated object) becomes destroyed.

Pedagogical practices in kindergartens are often presented as shifting, continuously changing and fluent (Dahlberg and Moss 2012). The materiality of the object, the paper sheet or the picture was once frail and delicate. Through the process of lamination, the object undergoes a powerful change: from perishable to everlasting and resistant. The objects move into a more energetic, vital and impervious shape. Referring to Bennett (2004), we may say that laminated objects extend agency because of what is deemed fixed and stable and what is not. Having a laminated object in hand feels more solid to the kindergarten teachers and can be understood as gaining more control in a complex pedagogical environment.

Thing-power 3: efficiency

Closely related to making documents and objects more durable, our informants wrote about how lamination increases efficiency in their everyday practice in kindergarten. As we stated in the previous section, laminated objects become more durable, so they can be used more than once. The teachers wrote how they often made their own pedagogical material and laminated it precisely to make it last. This helped save time because making new objects is quite time-consuming, hence giving them the time and ability to tend to other tasks. The following is an extract from one of the teachers:

We often operate in cycles of months and years in our kindergarten, and we have fixed plans for each season, every autumn, Christmas, spring. I also laminate pictures of weather, days and months. I love the lamination because I save time when I can reuse the products for every time of the year.

The teachers and students also wrote about how lamination improves and ensures efficient communication between co-workers and between the kindergarten and parents. For example, the many posters in the hallways and staffrooms would often be texts communicating standard guidelines or reminders of common rules and values that are supposed to be shared by everyone affiliated with the kindergarten (Skreland 2018). As these texts become laminated, they are brighter, more dazzling and, of course, easier to catch sight of. It is as the 'laminated texts speak louder and can be of help to the staff,' as one informant noted. Laminated messages are more likely to be seen and read by all the staff members; hence, lamination forces people not only to see but to perceive a given message. Making objects more durable is yet another way to increase the efficiency of early childhood practice. In recent years, the demand for efficiency has become more apparent in the everyday work of kindergarten teachers (Børhaug 2011, 64). The Norwegian researcher Trine Dale has claimed that policy documents and plans are made to clarify and make the assignments more comprehensible. These demands were perceived by the teachers as hard to withhold because kindergarten work also entails attending to both planned and unplanned incidents (Dale 2017). The laminated objects have the power to inform teachers; they signify and remind teachers of the tasks they are supposed to do, but when the teacher attends to the unexpected incidents, the object may become a constant reminder of what they did not do. Lamination encounters the kindergarten world with its own vitality (Bennett 2004) and power to substantiate the content that the communicated messages carries; thus, it makes communication more efficient, underlining our exploration of how everyday practice in kindergarten is not just determined by the values and messages communicated, shared and displayed on walls and boards: it is generated by the interactions between the people populating the place, the architecture and available technology (Burnett 2013). Again, we see how the thing-power of the laminated object causes effects and intervenes with humans (Bennett 2004). On the one hand, it participates in upholding the organisation, making communication between teachers, parents and staff more effective and vigorous. On the other hand, it helps them save time, creating a feeling of effectiveness in their pedagogical practices or even the opposite as a reminder of inefficiency or lack of capacity.

Thing-power 4: importance

We described earlier how the process of lamination changes paper, bugs or other artefacts into a plastic-covered object. It becomes 'some-thing' that is laminated. This process means certain objects are selected, discovered and thereby invented in a new way. Put another way: they gain other traits that they did not have in their original shape and form. As we have mentioned in the above section, when covered in a plastic coat, an object becomes durable and water-resistant, and then, in the experience of the teachers, it becomes more appropriate as a pedagogical tool. The laminated objects express a toughness, solidity and security. The object is both deemed of great importance and even more accurate, correct and true, as claimed by one of the informants. One kindergarten teacher put it in the following way:

It gains importance because it becomes more durable. Through doing that, we show that it is important to us that it is not so quickly destroyed.

Another kindergarten teacher operating along the same line of reasoning stated the following:

When you laminate something, it becomes more valuable. Something you shall not touch nor destroy.

What is deemed worthy of this process is not coincidental. The teachers are not indifferent to what they choose to process through the lamination machine; they carefully select what to laminate. As one teacher stated upon the question as to why she laminates: 'It looks more important'. Another informant emphasised this even further:

When you laminate something, it almost becomes like law, and it increases the attention on what is laminated. If something is laminated, it is 'just like it is true'.

This can be understood as collaboration between technology and teachers where they push certain values, practices and perspectives as more important than others. The selection process highlights how technology plays an active role in the relation between humans and things, transforming and constantly changing the world. The lamination machine exhibits liveliness and agency (Bennett 2004), and these are unexplored territories where it is not only the teacher who decides what direction the action is going. The lamination and lamination process transform, translate, adapt and reorient and take everyday practices into unknown territory. The lamination technology collaborates with the pedagogue in this endeavour, and the end result becomes a more important object coated in plastic.

The kindergarten teachers experience that the importance of laminated objects is also perceived by the children. Plastic-covered objects are treated with more respect, and the children do not vandalise them. One informant wrote that in her kindergarten, they laminated things that could be left hanging on the walls for years. The laminated things were still as good as new, whereas ordinary sheets were easily damaged.

The teachers wanted to help the children discern what is important from what is not. Lamination helps achieve this in making the objects more durable and beautiful, adding to their importance. Thing-power is a dynamic flow of energy between and with the components of assemblages (Lupton 2019). These assemblages possess agency, including the power to addle and rearrange thoughts and perceptions and enhance meaning (Bennett 2004). According to Bennett, thing-power is the ability of ordinary man-made items to exceed their status as objects and manifest traces of independence and aliveness, constituting the outside of our experience (Bennett 2004, 348; Bennett 2010, 3). How the informants seem to agree on this point indicates that lamination has become a vital part of the value dissemination that pedagogues engage in within their practice.

Thing-power 5: what cannot be laminated

In our endeavour to assemble the thing-power of the lamination machine in early childhood, it may be valuable to look at the boundaries of lamination. One of the questions we asked the informants was what they would *not* laminate. There turned out to be a surprisingly coherence in the answers

given from both teachers and students: they would not laminate anything with personal affiliations to the children. The following is an extract from one of the informants:

I would never laminate personal information about adults and children. When laminated, it becomes too carved in stone.

Many wrote that they would not laminate children's drawings. At first, we were a bit surprised by this because the teachers could use lamination to enhance the importance of products, so why not use it to magnify the products of the children? We asked a few of our experienced teachers to clarify this, and they stated that laminating children's drawings and art seemed like a violation of the original feature or attribute of the product. One informant put it in the following way:

I do not think that the shiny surface is a good look for children's drawings. It takes away the original texture. Personal information, art, drawings and things that are supposed to be used only once will not be laminated.

One informant humorously said, 'I would never laminate the children's diapers'. Even though this was a joke, she was touching on the essential aspect we are trying to disclose here: the encounter between the lamination technology and humans entails the ability to shift and vibrate between different states of being (Bennett 2004). Children attend kindergarten and preschool for a short period, and thus, the children represent what is fluent, fluctuating and always changing.

The affective forces of lamination

We have shown in the current article how humans and the lamination machine generate multiple connections, affective forces and agential dimensions explored the teachers' affective expressions for the lamination machine and its products. The rise of feelings connected to the activity of lamination highlights how humans and thinghood overlap on many levels. When the teachers expressed great happiness over the laminated result or when they raged over a paper getting stuck in the lamination machine, we suggest, in line with Bennett (2004), that the conjunction of paper and plastic carry a deeper meaning that serve to undercut the idea that lamination is more than merely preserving paper or strengthening children's play-materials, hence making the lamination machine a vital and powerful player in early childhood settings (Roggia 2002; Bennett 2004; Burnett and Merchant 2018).

Attending to the affective forces of both lamination as technology and as process/product we include reflections of the configurations of both human and nonhuman forces it opens up to a greater complexity in educational settings where we embrace surprise, contradiction (Burnett and Merchant 2018), unknown possibilities and directions (Osgood 2020) contesting the tight logistic and strict organising of time that have come to characterise early childhood settings (see, e.g. Nordin-Hultman, Solli, and Jansen 2004; Berge 2015; Eide, Winger, and Wolf 2019). This calls for us to recognise that engaging with technology is not exclusively human. Thing-power provides an understanding of how moods and feelings sometimes activate and enliven human action through the expression of a variety of actants (Bennett, 2009). The main point here is that thing-power materiality allows us to grasp how meaning is created when thing-power is contested and resisted as the machine's biography is negotiated, transcended or submitted to in early childhood practice. It is a constant negotiation and a coconstruction of purpose and meaning that is fundamentally important to EEC practice.

At first, lamination may seem like a mundane and ordinary activity that is not very significant to the early childhood education field. We will argue the opposite and highlight here that by looking at these ordinary, mundane and accustomed activities, we can see how active engagement with the objects—as a state of interactive fascination or 'enchantment' as Bennett (2010) would put it—participates in directing the teachers' priorities and stimulates and inspires the teacher's work. Lamination has the power to arouse feelings, to attract attention and to motivate acts of both teachers and children, and we see how people and things are momentarily caught up with each other.

Opening up to be affected and to affect means carefully scrutinise what lamination does, and we have shown how policy documents, timetables or rule sheets were laminated and transformed to become more colourful, shiny and constantly visible, noticeable, striking and prominent, entailing the thing-power to increase the pressure and holding teachers to an agenda, thus creating deep implications for early childhood work and practice.

Discourses of practicality

In our endeavours to understand the process of lamination and what this means in the early childhood setting, another focal point has been how teachers highlight lamination as useful and practical. Laminated objects were frequently used and displayed in the kindergartens, and children were given laminated objects to play with because they were able to withstand frequent use and children's sometimes harsh play. The laminated products were praised by both teachers and students for its practicality. Laminated objects are valuable because they are useful in pedagogical settings. This is not very surprising because early childhood educational work is executed in a practical world, and the everyday life of kindergarten is expressed through a whole range of practical activities, chores and care situations (Eide and Winger 2008). The practical qualities and characteristics of laminated products are recognised and given status and significance as play material for children and for early childhood education in general. In turn, laminated material becomes powerful because of its practicality. As we direct our attention to the interweaving relationship among the subjects, objects and social world (Bennett 2004), we get a glimpse of the dominant discourses and performative aspects of lamination, practice, teachers and children. We shall scrutinise this a bit further as we tend to how the teachers carefully chose which objects to laminate. When something has become laminated, it forms an effective assemblage located in the complex interinvolvement of human and nonhuman actants (Bennett 2004), as we have mentioned in the previous analysis. Through its alteration, the materiality acquires a higher status. It—the laminated object—becomes more meaningful, important and lasting, and in this sense, the laminated object becomes truer and more valuable than other nonlaminated objects. As a laminated item, the object seems to gain even higher importance in the kindergarten setting when displayed on a wall, where it is visible, shiny and long-lasting. The paper or object being laminated is intrinsically important by itself. At the same time, it accumulates and increases its importance through the process. It becomes more important when laminated.

The thing-power of the laminated object insistently demands obedience and adherence by its users, and as we show in the analysis, the teachers very often cooperate and submit. Still, our inquiry allows for seeing how thing-power is negotiated and renegotiated between the technology and the people using it. The teachers are resisting and contesting lamination when they demarcate the connections between children, personal things and its sometimes unfitted, shiny, glossy surface. By doing so, they resist and challenge thing-power. The assumption here is that technologies generate forces in relation with the humans who create and use them—or as in this case, relinquish or resist their use. Through resistance, the embodied connections between technology and people are verified and strengthened, and in the end, the lamination machine's thing-power is confirmed and reinforced.

The laminated objects were considered especially suitable for small children, and the plastic-covered laminated shapes were seen as best suited for children. Teachers have always been concerned about identifying proper and stimulating materials for children, here rooted in curriculum plans and child-centred pedagogies (Lenz Taguchi and Sjøbu 2010; Osgood 2020), as an important part of their work. If we include how materials possess vitality and the laminated materials' entanglement with space, humans and technology, we may catch sight of the establishing, upholding and enforcing of discourses in early childhood education. As we show in the results, the children were defined as careless and impure users, probably reckless and people from whom the more fragile and delicate material needed to be protected. Furthermore, children's products were defined as not

suitable for lamination because the children were changeable, fluctuant and/or the visitors (De Jong 2005). Attending to the entanglements produced by technologies will challenge the innate 'truths' of good and best practices. Definitions and discourses concurrently distribute power to the teachers as they become the opposite: the careful and the inhabitants of the kindergarten. This is a description of the way in which the forms of agencies are relationally generated in human, nonhuman assemblages expressed and manifested in the ways children and laminated objects produce discourses. The thing-power of lamination's practicality and usefulness helps to identify the discourses in early childhood education. Contesting major discourses may prevent practice from becoming cemented and fixed. When practicality and usefulness gains hegemony, there is a danger of getting too caught up in 'what works' rather than reflecting on the how or why, which are questions that are crucial to an ethical-pedagogical practice (Osgood 2020).

Creating a broader lamination vocabulary

Thing-power materialism may also force us to contest a crossing from the thing to human culture, thereby reaching a more complex understanding of the relationship between technology in early childhood practice. We have shown how the 'biography' of the lamination machine situates the machine historically and culturally, forcing teachers to use it in its proper manner and submitting to its original purpose. Sometimes, if we try to elude its inherent and biographical 'truths' and if we try to centre stage the power of the machine, it gives greater latitude to the capacity things have to move, threaten and inspire humans, as Bennett (2004) writes. This becomes evident when we see how the machines transcend the early childhood practice in a variety of ways. Both the teachers and students obtained a 'lamination vocabulary' that was much richer and imaginative than the solely preserving paper. The main point here is that thing-power materiality allows us to transcend the obvious and what is traditionally well known, grasping how meaning is created; hence, we are urged to broaden our lamination vocabulary by crossing the obvious and entering into a practice of constant negotiating and a reconstructing its purpose and meaning. A process we claim is fundamentally important to EEC practice. Therefore, the material-social relations can never be neutral (Burnett and Merchant 2018). With Bennett's notion of thing-power, we are impelled to confront our habitual ways of thinking about lamination. Through thing-power we expand our perspectives and reorientate toward how practices as constructed and what is valued in early childhood education.

In conclusion, we have tried to trace some of the multiple ways in which technological devices are embedded in multiple material-social relations. It is beyond the scope of the current article to trace all of them, but we have identified some of the complexities of these relations. In preschools and kindergartens, the lamination machine is often placed in an adjoined room to where the interaction between staff and children plays out. Yet we have shown that the machine has tentacles from its distant placement, creeping into all the other kindergarten rooms, affecting what is going on. Being an ordinary and quite common machine, it is tightly woven into the everyday life of the kindergartens. The machine is placed to the side as a present absence (Ihde 2010, 153), thus becoming a part of the experienced field of both children and teachers, a piece of their immediate environment and a vital part of how the world gets made.

Notes

1. We both work as assistant professors and have been following students during their work in kindergartens for several years.
2. The experienced teachers had all worked for five years or more and were selected purposely among our own networks. They were teachers we had gotten to know and interacted with through our work at the university.
3. The project follows the ethical standards of NSD (Norwegian Center for Data management) implying that data was handled sensibly, and anonymity ensured for the participants.

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