Chapter 3

Literacies, Play and Experience: The Need to Bridge Distinct Disciplines

In this chapter, I further develop some of the initial aspects of play introduced in Chapter 2, plus present and discuss distinct disciplines that need to be considered when researching children and emerging technologies. Even though these disciplines have specific and defined angles, being them literacies, multimodalities, play or experience, they need converging when observing children's play practices.

   The chapter delves in each of these aspects, some more in-depth than others providing an overview of existing theories covering recent discussions in these fields. Later in the chapter, I propose how these topics complement one another and thus giving a better understanding of emerging paradigms in children's digital play phenomenon.

3.1.   A Glance at the Chapter

Due to the ubiquity of portable devices, such as tablets, together with the ongoing development of new interfaces of interaction (wearable, non-touch interfaces, etc.), it is relevant to reassess children's digital literacies currently witnessed in society (Merchant, 2015a). The reason for choosing to converge theories on play, literacies and experience in one study emerged during the pilot observations. Initially, I envisioned assessing themes related to those described in digital literacy and literacies theories (Eshet-AlKalai, 2004; Gillen, Barton, Kress, & Garnett, 2010; Gilster, 1997; Lankshear & Knobel, 2008; Marsh, 2004, 2005a, 2014; Martin, 2008; Sefton-Green et al., 2016; Weber & Dixon, 2010), but throughout the pilot observations, I was also able to identify current practices of digital play (Kline, Dyer-Witheford, & Peuter, 2003; Marsh, Plowman, Yamada-Rice, Bishop, & Scott, 2016; Plowman & Stephen, 2014; Verenikina & Kervin, 2011) and, witness aspects related to digital experience (McCarthy & Wright, 2004) in children's play practices with tablets.

   Considering that the children observed were of a young age, it might be expected that their primary focus when using digital devices was playing and having fun − as they themselves described it during the sessions. Nevertheless, while children played, they also created stories and characters, interacted with symbols, icons and brands in a variety of forms, discovered how to play, what

to do and how to do it while also learning − all these aspects were intertwined in their tablet play. Therefore, I had to take a step back in my process and question:

- What literacy is within the field of playing (what types of learning are taking place?);
- What being 'play literate' is (how to master the requirements in order to navigate an array of options and digital game narratives);
- What being 'digital literate in playing as a young child' is nowadays (how do recent definitions of young children's digital literacy encompass aspects of tablet play?).

Thus, I have drawn on the concept of literacies and have analysed children's practices with tablets through the lens of digital literacies and play theories, while having the freedom to adapt the definitions according to the empirical data collected.

This chapter primarily introduces theories on digital literacy and play, and is divided into three main sections: Digital litera*cies*, Play, and Digital literacy and Play. Besides these sections, a final section is dedicated to briefly introducing theories on knowledge and experience related to social practices, which have also informed my research.

The first section covers digital literacies and reviews of the existing theoretical approaches to both digital and media literacy (Buckingham, 2006, 2007; Ito et al., 2013; Livingstone, 2004, 2003, 2008a, 2008b). Theories on digital literacy span a sufficiently wide spectrum. They are briefly introduced and discussed in the following pages, complemented by theories on children and literacies. These theories covering children and digital literacies are of high relevance to my own research and bring key questions that more efficiently guide my contribution to the field. Consequently, although I acknowledge a number of theories covering studies on literacies, I have chosen to limit my scope to digital and media literacy theories, giving preference to concentrating on scholars who focus primarily on children. The focus of literacy-related studies (Buckingham, 2006; Erstad & Amdam, 2013; Jones & Hafner, 2012; Lankshear & Knobel, 2008; Marsh, 2004, 2005b; Rowsell & Pahl, 2015) has evolved from basic literacy skills, such as reading and writing, towards more complex definitions, such as those covering distinct media and technological aspects such as 'digital literacy' and 'digital literacies' (Eshet-AlKalai, 2004; Gillen et al., 2010; Gilster, 1997; Lankshear & Knobel, 2008; Marsh, 2004, 2005a, 2014; Martin, 2008; Sefton-Green et al., 2016; Weber & Dixon, 2010), 'emergent literacies' (Spencer, 1986), 'media literacy' and 'information literacy' (Gillen et al., 2010; Leu et al., 2004; Levinsen & Sørensen, 2008).

The second section covers play theories and introduces specific aspects of play from within historical and sociological studies (Caillois & Barash, 1961; Henricks, 2006; Huizinga, 1949; Sutton-Smith, 1986, 2001) together with the

related play aspects from within education and psychology studies (Bodrova & Leong, 2015; Dockett & Fleer, 1999; Fleer, 2014; Piaget, 1951; Vygotsky, 1966, 2004). These aspects are complemented with research related to digital aspects of play and playfulness experienced in social and cultural practices (Barnett, 1990; Ejsing-Duun & Skovbjerg, 2015; Kline, Dyer-Witheford, & De Peuter, 2003; Pesce, 2000; Plowman & Stephen, 2014; Plowman, Stephen, & McPake, 2009; Salen & Zimmerman, 2005; Sicart, 2014; Verenikina & Kervin, 2011).

The third section covers digital literacy studies and play, joining the two previous sections by defining current studies and theories at the intersection of both fields. These fields have been combined before by a number of authors (Abrams, 2015; Gee, 2003; Jones & Hafner, 2012; Marsh, 2005a, 2010, 2014; Marsh & Bishop, 2013) who have studied overlapping characteristics that join literacy and play; media and play; literacy, play and consumption; etc.

The fourth section of this chapter highlights notions of knowledge and experience from the fields of phenomenology, anthropology, and science and technology studies (STS). These notions, such as Merleau-Ponty's habit (2002), Ingold's embodied knowledge (2009, 2013) and Latour's actor-network theory (2005), guided me to reconcile my research with aspects of tablet play that went beyond the app designs and purposes of the device. Consequently, these theories are briefly mentioned in this chapter although they do not represent the core focus of this research.

Following these four sections, I present a summary of the key theoretical concepts that are introduced throughout this chapter. These concepts serve as a plateau for further elaborations based on my findings, which are presented in the later chapters of this book.

3.2.   Digital Literacies

Digital literacy is a broadly discussed concept. When Gilster (1997) first suggested this expression in his book of the same name, digital literacy was related to computer-mediated information. He defined it as 'the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers' (Gilster, 1997, p. 1). He discussed how reading always required interpretation or the capability to grasp what the combination of joined letters meant. As the definition of literacy evolved from basically learning the alphabet towards a critical and rhetorical competence, the digital literacy definition has also engaged in the same type of evolution.

With the growth of technologies mediating the Internet, together with its modes of use in the past 20 years, Gilster's definition has been challenged and complemented by other scholars (Buckingham, 2006; Chang, Nunez, Roberts, Sengeh, & Breazeal, 2013; Couse & Chen, 2010; Leu et al., 2004; Liestøl, 2007; Shuler & Ed, 2009). Lankshear and Knobel (2008) who have acknowledged what they call the 'plethora of conceptions of digital literacy', presenting a wide scope of the digital literacy topic and suggesting instead the plural form of the

expression – digital litera*cies*. I entitled this section 'Digital Literacies' because I feel the expression better informs the breadth of literacy studies described here.

In current social practices, including those involving young children, and with the ongoing development and adoption rate of emerging technologies, digital literacy can then be seen as a 'framework for integrating various other literacies' (Bawden, 2008, p. 28). Martin (2008) presents 'literacies of the digital' encompassing: computer, information technology (IT) and ICT literacy; technological literacy; information literacy; media literacy; visual literacy; and communication literacy. These literacies emerged due to the need to address technology-related competences, which evolved through a range of developments involving technologies and cultures. However, they are intertwined in social practices and intersect and complement each other. These literacy areas focus primarily on adults as their target group, and scholars have relatively recently acknowledged a gap in digital literacy studies focusing on children (Marsh, 2005a).

Parallel to digital literacy studies, a number of scholars have concentrated their efforts on the developments of emergent media and literacies (Buckingham, 1993, 2006, 2007a; Drotner & Livingstone, 2008a, 2008b; Holloway et al., 2013; Livingstone, 2003, 2008a, 2009). Definitions of information literacy and media literacy have emerged almost concomitantly (see Table 2) and complement each other, as suggested by Livingstone et al.:

> While media literacy and information literacy have developed as separate traditions, they share many of the same values. In general, the 'media literacy' tradition stresses the understanding, comprehension, critique and creation of media materials, whereas the 'information literacy' tradition stresses the identification, location, evaluation and use of media materials. Metaphorically, we might say that 'media literacy' sees media as a lens through which to view the world and express oneself, while 'information literacy' sees information as a tool with which to act on the world. (Sonia Livingstone, Van Couvering, & Thumin, 2005, p. 12)

Media literacy has been described as the capacity not only to use media devices but also to be able to assess and understand the breadth of media's cultural aspects and impacts (Buckingham, 2006). In Buckingham's view (2006), media literacy is the outcome of media education. He defines the purpose of media education as the development of a broad competence in relation to the widest range of media and suggests that digital media should be regarded as more than just teaching aids or tools for learning. He points out that early definitions of digital literacy confined the field within an instrumental context, instead of broadening its scope to that already suggested within media literacy studies (Buckingham, 2006). The four components he identified as the core base

for being media literate were representation, language, production and audience (Buckingham, 2006).

(1) *Representation*: being able to critically assess and evaluate content, both the motivation behind the production and the reliability of the information.
(2) *Language*: being able to critically assess the semantics of the language used, and this aspect would vary according to the medium; in the case of digital literacy, it would include being able to question how the information is designed and presented.
(3) *Production*: being able to critically assess the role of the communication. Buckingham (2006) exemplifies this component with the role of commercial aspects present in information consumption.
(4) *Audience*: being able to critically assess one's role in receiving (and I would add, also in producing) information.

Following this framework, another recent attempt to aid childhood scholars researching digital literacies was the adaptation of Green's model of literacy (Green, 1988 in Sefton-Green et al., 2016), which consists of three dimensions: *operational*, *cultural* and *critical*. These dimensions relate to aspects of media literacy studies, and when arranged in parallel, they intersect. While media literacy scholars consider the aspect of critical assessment to be the core of any media use or production, in the adapted model of digital literacy *critical* is presented as one of the three dimensions. The *cultural* and *operational* dimensions cover the social practices and required competences when interacting with digital devices. However, these dimensions are intertwined and occur concomitantly, which closely agrees with the media literacy framework (Buckingham, 2006). I present both frameworks from Buckingham and Sefton-Green et al., in Table 3.1 to demonstrate their points of intersection.

These aspects are also present in current definitions of other types of literacies; the constant fount of emerging technologies challenges existing concepts and creates new spaces to be filled. The plural aspect of the literacy term suggests its ongoing reconceptualising following social changes, cultural demands and developments. Besides digital literacies (Gillen et al., 2010; Jones & Hafner, 2012; Lankshear & Knobel, 2008), other terms such as *multiliteracies* (Cope & Kalantzis, 2000) have also been proposed within New Literacies Studies (NLS). NLS acknowledged the breadth of literate practices (Sefton-Green et al., 2016) and primarily suggested 'literacy as a social practice' (Street, 2003); literacy as a learning that is intertwined in all actions, everything from interacting with people, objects and environments to a 'sociocultural phenomenon' (Gee, 2015, p. 35). NLS has looked at both educational practices and literacy changes through emerging technologies. Initially, these studies focused primarily on educational purposes and developments, even though they acknowledged the wide range of modes where these developments could occur. For example, aspects of literacies were already combined with wider media contact and perceptions in

Table 3.1. Media Literacy Framework (Buckingham, 2006) × Digital Literacy's Dimensions (Sefton-Green et al., 2016).

	Representation	Language	Production	Audience
Operational	Critically assess and evaluate content, both the motivation behind the production and the reliability of the information	Ability to read, write and 'make meaning in diverse media, utilising a range of modes'	Critically assess the role of the communication	
Cultural		Critically assess the semantics of the language used. This assessment would vary according to the medium. In the case of digital literacy, it would include being able to question how information is designed and presented		Contextualised practices emerging from 'engaging in digital literacy practices'
Critical	Critically assess and evaluate content, both the motivation behind the production and the reliability of the information			Critically assess one's role in receiving information

pedagogical theories, as acknowledged by Spencer (1986) in her article entitled 'Emergent Literacies' discussing children's literacy competences before entering the school system:

> The continuous incidental interaction of children and adults in a world of increasing semantic complexity, intercultural contact, common experience of media, and the possibilities of almost immediate communication systems […] have to be acknowledged as events in emergent literacies. (Spencer, 1986, p. 445)

Moreover, Gunter Kress (Gillen et al., 2010), who has focused primarily on literacy related to reading and writing skills, discusses how texts have multi-modal aspects, currently presenting a mesh of textual, visual, auditory, etc., information. These aspects are combined with how texts are displayed, such as the design and the form (screen-based) through which they are presented. During my research observations, these multimodal aspects containing sound, visuals, texts and symbols, which are inherent of tablet interfaces, were experienced within the cultural contexts of the preschools of each country.

Games and digital play have also gained attention among literacy scholars. For example, both aspects have been considered a way of acquiring and developing reading and writing skills (Christie & Roskos, 2013; Gee, 2003; Roskos & Christie, 2001; Sonnenschein, Baker, Serpell, & Schmidt, 2000). Play is then seen as a medium where some aspects of reading and writing competences emerge before children start attending schools. Interestingly, play and literacy received a lot of attention in the last thirty years of the twentieth century in the fields of learning and early literacy; however, research in this particular field has somewhat diminished over the past 16 years (Christie & Roskos, 2015). Instead, there has been growth in game studies and play, however, not necessarily related to literacy or particularly focused on young children. My focus on tablet play practices addresses this gap by focusing on the literacy or the learning that is related to young children's play experiences with these devices.

Games, as well as other types of media, such as TV, film, comics, cartoons, and magazines, all converge in tablet devices. The convergence of media through mobile phones (and I suggest also tablets) has been affecting how mobile users, including children, attain and perceive literacies (Lankshear & Knobel, 2008; Leu et al., 2004). Literacy scholars (Dyson, 1997; Dyson & Genishi, 2009; Weber & Dixon, 2010) suggest that media encounters compose the 'common story material' (Dyson, 1997, p. 7) of childhood and 'constitute a form of literacy' (Weber & Dixon, 2010, p. 33) that needs to be acknowledged by adults and educators. As consoles have evolved and digital play has become accessible through all kinds of personal devices, from computers and key chains to phones and tablets, digital literacy studies have gained yet another subsection, one involving very young children. Interestingly, these young children are not yet necessarily able to read and write (in the simpler definition of these words) but are very much engaged in play.

In sum, all of these literacies studies converge towards one common ground, that of access, use, creation and critical assessment of information. To distinguish one from the other, we have to consider both the traditions of specific fields, together with the speed with which applications and information sources develop with and through scientific advances, with technology being the most prominent in recent discourses. Being literate involves more than reading and writing. It requires that one is competent in contextual abstraction in order to understand the intrinsic meaning of the message. Therefore, it is not uncommon to have the concept of literacy linked to a field spanning many disciplines. As digital aspects become increasingly intertwined in everyday living, digital literacies' competences (Gillen et al., 2010; Lankshear & Knobel, 2008) broaden their spectrum, incorporating more and more fields. Consequently, the discussion about literacies and their competences is bound to continue and evolve together with cultural and technological progress. As suggested in my introduction, every historical period brings its own technological advances and repercussions, i.e., type with typewriters or touch with tablets. The artefacts change and the craft or the penmanship develops, adapts and evolves accordingly.

Digital competences are not the same as digital literacy, although they are a pre-requirement for digital literacy (Martin, 2008). If digital competence is compared to an early definition of literacy, i.e., the ability to read and write mentioned above, the competence can be exemplified as the ability to recognise symbols such as letters, together with knowing that in order to recreate those symbols on a surface, any person requires a tool (finger, pencil, brush, pen, ink, etc.), and to develop penmanship. Therefore, digital competence can be described as the capability of recognising and disposing of digital resources as tools. Martin (2008) argues that *digital competences* are the set of skills required for *digital usage* and *digital transformation*. He combines the three elements of competences, usage and transformation in one concept by defining digital literacy as:

> The awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process. (2008, p. 167)

In order to use digital tools, one's hands − as the tools that execute the interaction − must become acquainted and learn modes of interactions with diverse movements and gestures. These hand actions and reactions are mostly taken for granted, attached to the use of the widely spread term intuitive interfaces (Clarke & Svanaes, 2014; Connell, Lauricella, & Wartella, 2015). However, observing children's hands guided me not only towards acknowledging the hands as the main active communication tool when children interact

with tablet devices, but also led me to question key points regarding this ability, which involves the concept of penmanship in the digital age, identifying it and defining why it is important, and the concept of intuitive interfaces, if such a characteristic exists or if it is just a misperception. Thus, I acknowledge that both concepts require revision assisted by definitions of digital literacy practices, which shift and adapt depending on the target group being studied.

For example, in childhood studies, Sefton-Green et al. (2016) have proposed a more condensed definition of digital literacy as 'a social practice that involves reading, writing and multimodal meaning-making through the use of a range of digital technologies' (Sefton-Green et al., 2016, p. 15). This definition agrees with that of Martin (2008), but it simplifies it to a core. For example, where Martin's definition uses 'in the context of specific life situations, in order to enable constructive social action', Sefton-Green et al use 'social practices'. This updated definition also synthesises the aspects of 'use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions' into 'multimodal meaning-making through the use'.

When referring to digital literacy later in this book, I use primarily the most recent definition proposed by Sefton-Green et al. as, like mine, their research focuses on young children. Nevertheless, as I later suggest an adjacent aspect within digital literacy studies, I believe it is vital to acknowledge the convergent and divergent aspects of previous suggested digital literacy (ies) definitions since besides expanding and grounding digital literacy studies, they also indicate existing gaps in the field. I do not necessarily agree that condensing the term will resolve the discussions. However, it does give an adaptable framework for the assessment of literacy in distinct fields.

In sum, digital literacy can be broadly described as any digital-dependent event affording and encompassing some type of interaction leading to some type of learning. However, such broad definition is not helpful, as it does not necessarily acknowledge all the nuances encountered in these interactions, hence all the sub-divisions on the theme. Consequently, laying out digital literacy studies in one grid helps identifying existing gaps in these fields. For example, although games literacy is present, there is no aspect of young children's play clearly defined in it, although it could be assumed that this play aspect is present within the 'social practices' described by NLS.

Visual literacy is an intrinsic part of interacting with digital devices, considering their content-dependent visual information. Communicating through digital interfaces with objects and other people is also a relevant aspect when interacting with tablets. Most of these types of literacies are blended and intertwine the use of digital devices, particularly in the case of young children, who dedicate their attention to these devices while having fun. Thus, when observing young children, play becomes the focus. Play is the way these children engage with the world around them and with digital technologies, which are embedded in current social practices.

3.3. Play

Play shares the wide cross-disciplinary reach of literacy studies. It has been theorised and discussed within distinct fields, from both historical and socio-logical perspectives, to psychological and educational contexts. Theories focus-ing on play in children's development and learning (Buckingham, 2006; Papert, 1993a; Piaget, 1951; Vygotsky, 1978; Winnicott, 2005) as well as on play theor-ies of symbolic and make-believe play (Caillois & Barash, 1961; Henricks, 2006; Huizinga, 1949) have looked at play across a wide spectrum as well as its unique role in the life of humans.

Henricks (2006) revisited sociological theories of authors such as Durkheim, Marx, Simmel and Goffman, confronting the play space in society by critically assessing the theories in contrast with aspects of play previously defined by Huizinga and Callois. Henricks presents play as 'the laboratory of possible' (Henricks, 2006, p. 1), and also argues 'no discipline has moved this topic (play) to the centre of its theoretical or research tradition' (Henricks, 2006, p. 3).

Piaget (1951) and Vygotsky (1966, 1978) touched upon the importance of play for children's mental developments and stages, and how those processes help children's learning. For Piaget, children's cognitive abilities were developed through playful experimentation; something that should clearly be reassessed nowadays in the way children play with digital devices. In this research, I am particularly interested in the aspects of play that occur with the help of digital devices, such as tablets. A type of play that creates vocabularies and knowledge at various levels, both physical and cognitive, though emerges from unintended learning activities.

In both psychology and educational studies, the role of play has been attached to aspects related to child development and learning; therefore, play has been analysed and theorised in somewhat instrumental ways (Kuschner, 2015; Marsh, 2010). Possibly due to the pervasiveness of this scholarly tradition, play studies have also tended to focus on child development. Play was then seen as a tool for adapting to the adult world. Learning and play were interlaced as a way to develop and engage children in acquiring a range of skills required for entering schools, including those related to basic literacy.

Psychological theories, such as those by Piaget and Vygotsky, created aware-ness of how play could flourish in preschools, kindergartens and school settings, and highly influenced pedagogical practices in the twentieth century. Within psychology and education, specifically in the area of cognitive development, Piaget (1951) and Vygotsky (Bodrova & Leong, 2015; Vygotsky, 1966) looked at play through a similar lens, that of play and learning, but with somewhat dis-tinct points of view. Piaget (1951) focused on play serving the role of preparing children for adulthood, identifying stages where children would master specific skills and capabilities required in their future lives. Vygotsky (1966) looked more specifically at how child development was dependent on social interaction, focus-ing on how role-playing (and not so much other types of play) was an important social aspect of achieving social and cognitive maturity.

Both Vygotskian and Piagetian theories have been revisited, embraced and criticised in recent years, with re-elaborations being most prominent within the fields of child education and psychology. Leontiev (Bodrova & Leong, 2015) contributed to Vygotskian theories by adding that play was the main and leading activity of children in their preschool age and suggesting that play provided ideal conditions for children's mental development. Fleer (2014) builds on both Vygotsky and Leontiev's theories by adding current cultural-historical perceptions of play, including those related to digital devices and experiences. She points out how children's *psychological development of play* first explores the functionality of objects, which will then be given meaning through their social interaction. In her words, 'objects embody socially produced meaning' (2014, p. 16). Fleer also suggests children's imaginary will go beyond the socially constructed meaning of the object through the development of play (Vygotsky and Leontiev, 2014, p. 16).

Play can be a tangible or an abstract experience, and according to Huizinga (1949), it is a non-serious and free activity that absorbs the player intensely. Vygotsky (2004) discussed the topics of creativity and imagination, suggesting that children combine their experiences to create something new while playing. More recent authors have described play as 'a portable tool for being […] a way of expression, a way of engaging with the world' (Sicart, 2014). In play, young children find themselves at the crossroads between the physical world and their imagination (Ackermann, 2013; Fleer, 2014). Sutton-Smith has pointed out how play has been associated with child development, and how the idea of play as progress has focused on progress rather than enjoyment (Plowman & Stephen, 2014; Sutton-Smith, 2001).

Personally, I think of play as being our sixth sense. Play is what capacitates us socially. Consequently, it is not a surprise that play is observed among various species. Play might be the sense that makes sense of sight, smell, hearing, touch and taste. It promotes encounters with things and others, feeding our notions of boundaries and explorations, building each individual's own progression.

Progress is intertwined in play as a progression of thoughts combined with actions and objects that entangle themselves in a continuum. In the case of young children, play composes the concept of everyday living and routine, which will be disassembled as children grow older and learn to distinguish between play and non-play activities, play and non-play objects. Vygotsky suggested that young children's play, which he saw as human development, emerged from social exchange and was 'a complex interplay' between natural development 'and the cultural development created by the interaction of a growing individual with other people' (Bodrova & Leong, 2015, p. 2). A similar 'complex interplay' exists in cultural development and involves interacting with things, where this *inter*-aspect of play refers to objects to play with. These objects might not be toys; however, they become one within the context of the interaction, in the interplay between child and object, as witnessed in my observations. This 'object turned toy' perception aligns with Sicart (2014), who suggests that play is not 'tied to objects', but instead emerges from the 'complex interrelations with and between things that form daily life' (2014, p. 2). In the context of my research,

tablets are some of these things that shape many young Danish and Japanese children's lives.

Toys or *props*, following Vygotsky's role-playing descriptions, also fulfil a symbolic purpose, and through playing with an object, children master their symbolic ability, which paves the way for imagination and creativity. Toys are described as culturally bound, fulfilling a role in the play ecology and bridging reality and fictional worlds (Ackermann, 2013; Fleer, 2014; Marsh, 2010; Sicart, 2014). This perception is supported and expanded by Sutton-Smith's suggestion that 'toys are an agency for the imagination', and that children 'control the toys rather than the other way around' (1986, 205). Besides these imaginative aspects attached to toys, when in play, any object, whether a toy in itself or an 'object turned toy' in the activity, might foster emotional connections and attachments (Fleer, 2014; Roskos & Christie, 2011), therefore becoming a toy. Overlapping these points in relation to my own research, questions regarding the control aspect emerge within tablet play, because although children have some agency regarding when and what to play, the device itself is physically constrained. So I ponder how this aspect limits or expands children's digital play in current scenarios. Another valuable aspect is looking at the interplay leading to transforming these digital devices from an object into a toy.

3.3.1.   *Play and Playfulness*

In the later part of the twentieth century, Seymour and Harel (1991) built upon Piaget's work, combining the ideas of play and tinkering as a framework for learning, suggesting the term *constructionism* or as it became widely known as 'learning by making' or 'learn by doing'. Moreover, it is not to be forgotten that a similar idea had been proposed in philosophy. Dewey, as early as in 1916, argued that we learn through experience (Dewey, 1916).

In the case of digital play, this tinkering idea re-emerges among a range of studies, as devices are seen as learning tools by parents and educational institutions[1], though they are not always directly linked to the role of fun or playfulness that the applications might also afford (Norman, 1988). In order to better frame digital play, it is relevant to distinguish play from playfulness. While play is identified as an activity (Caillois & Barash, 1961; Huizinga, 1949), playfulness does not necessarily imply the same, as playfulness exists in its own mode and accord and is sometimes constrained to a brief moment or an attitude that does not necessarily evolve into an activity (Barnett, 1990). Some play scholars have kept these two distinctions intertwined in the play description. Henricks points out:

> Play can be a moment of quiet reflection or an occasion for pub-
> lic hilarity […] playing with bats and balls seems somehow

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[1]According to responses from informal interviews and conversations with parents and children's pedagogues from the participating institutions.

> different from the play of the mind or the practical joke or the
> pun or the flirtatious glance […]. (Henricks, 2006, p. 182)

Sicart defines playfulness as: 'a way of engaging with particular contexts and objects that is similar to play but respects the purposes and goals of that object or context' (Sicart, 2014, p. 21). Any object that participates in the play event is imbued with references and associations, which might characterise it as a toy (or 'prop' in the words of Vygotsky). So among young children, I suggest that it is the aspect of playfulness that allows for the transformation of a tablet from a digital object into a digital toy; although the device is not designed specifically for children and can be used for many purposes, the 'purposes and goals' of children's tablets might just be that of playing[2].

Expanding the playful use of mobile technologies to their current role in children's lives, Jessen and Karoff (2008) have suggested that 'children today cannot do without toys, media or other equipment when they play – alone or with other children'. I would argue that tablets have followed this trend in the countries where the data were collected and they have become a toy in the digital play landscape (Kline et al., 2003; Marsh, 2010; Plowman & Stephen, 2014; Plowman et al., 2009; Verenikina & Kervin, 2011).

Digital devices and their applications afford many play and playful aspects[3]. They provide content and access for the brief playful act, but the act is dependent on the child's own approach (Marsh et al., 2015, 2016). That being said, some apps do promote playfulness by inviting a child's 'fun universe' into their play. The apps vary from full play activities, such as actual app games with a defined structure, to other loose actions when using other types of applications, such as using the glass of the device as a mirror, recording funny sounds, and playing with letters in input fields. Another good example is the camera app, where children make funny faces, take pictures of these faces and laugh a lot when looking at the pictures. So even though this application does not necessarily fit the description of a funny app, the reflection and the possibility to capture the funny faces and expressions promote playful moments and responses. Both play activities, apps designed for children and playful approaches, such as making faces at the camera, have 'fun' as their common ground.

However, I would like to supplement the idea of a tablet as a toy by pointing out how digital toys differ from regular physical toys in several ways. One of the first noticeable aspects refers to how apps are currently chosen and downloaded, mostly by parents, older siblings or educators and not necessarily only by the

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[2]I will return to this aspect in my discussion, as a range of curious, and somewhat *subversive actions,* were witnessed during tablet play with young children.
[3]However, it is valuable to clarify that there are digital objects designed for children as digital toys, such as Nintendo Gameboy, and there are digital devices that are not necessarily designed for children, which have become toys or portals for play when in use, as in the case of mobile phones and tablets.

children themselves (Marsh et al., 2015). Physical toys are not necessarily chosen only for their 'teaching' aspects, with both children and brands playing a role together with 'cute' and fun aspects, which are equally important. In the case of apps, parents and pedagogues from the preschools in my study mentioned 'learning' as the main purpose for downloading the apps. This finding also agrees with the study by Marsh et al. (2015) where parents specified learning as the highest quality when choosing an app, but at the same time were not keen on spending much on these apps. Brands were also mentioned, mostly relating to their educational purposes or background, as in the case of LEGO or the local TV channel app.

A second aspect refers to the type of play, as the character and use of physical toys might vary according to each child's imagination and will. For example, a LEGO piece can become food when playing 'family' with other dolls, or a teddy bear can have a range of personalities depending on the child's mood. In the case of tablets, these aspects are limited as the apps pre-define the main characteristics of the play and the characters' personalities. Besides, they do not necessarily interact with each other, therefore remaining silos in themselves. For example, if you dress up a doll in one app, you cannot necessarily use that dressed up doll in another app or game, with the exception of taking screenshots and using them in videos or 'paint or photo type' applications. Tablets offer a range of opportunities from within each application, yet they do not necessarily allow for a change of property, as seen with physical objects (although the object itself can be used as part of playing house).

A third aspect through which tablets, as digital toys, differ from physical toys relates to notions of digital spaces, or how children's experiences with digital devices shape unique notions and uses of these spaces. This topic, as it belongs to a larger scholar field, requires further elaboration and is presented briefly in the following *digital spaces* subsection.

Regarding digital play, tablets, as emergent digital toys, are paving a relevant way towards not only future toys but also digital technologies as a whole. Based on my observations during the research, I could identify a couple of affordances (Norman, 1988) that are inherent to tablets (and smartphones) and can present some early answers to previous questions on the role of the tablet as a digital toy. These affordances constitute a body of digital experience, which is composing current literacies of the digital and these will be presented in the discussion chapter.

3.3.2. *Digital Spaces*

Digital spaces (or as otherwise described, virtual spaces) have been discussed and presented by a number of scholars studying technologies, games and human perception (Ackermann, 2013; Chipman, Fails, Druin, & Guha, 2011; de Souza e Silva & Frith, 2010; Gaines, 2006; Turkle, 1984, 1995; Weber & Dixon, 2010). I will briefly present recent studies addressing digital spaces that take into consideration current digital artefacts such as tablets.

Digital spaces in the context of this research do not necessarily refer exclusively to the imaginary projection of oneself into a non-tangible dimension (de Souza e Silva & Frith, 2010; Turkle, 1984, 1995). I am looking at digital spaces as non-tangible, created areas within tablets and their applications, such as creating 'pages', 'sections' and 'folders' to accommodate apps. Although some of these spaces inherit their metaphors from their older relatives (desktop and laptop computers' interfaces), these constructions are mostly unknown to young children, who are learning this semiotic vocabulary through tablet play. Organisation, distribution, location, notions of distant locations that are finger reachable are some of these space perceptions present in digital platforms. Children are becoming acquainted with these digital spaces while at the same time creating distinct notions about these spatial affordances. A physical example paralleling a digital space experience would be being able to create extra rooms in a physical house as needed − having no physical limitations to prevent that from occurring.

Gaines (2006), while discussing Kostogriz, presents a 'literacy of multiple perspectives', where spaces where we live and learn are negotiated between objects and cultures, creating a *thirdspace*, 'where the meaning of a sign is negotiable'. He adds that 'all media establish a space for re-contextualising the meanings of things that have different meanings in other contexts.' (Gaines, 2006, p. 176). This *thirdspace*, in the context of children's digital play on tablets, could be exemplified by the negotiated notion that children acquire through interacting with digital icons and feeling their presence extend to spaces and narratives on tablets and apps (shaping their own 'digital culture'). This acquired perception is complemented by the tablet affordance of 'infinite' storage of games and activities that allow and invite users (in this case, children) to cross-borders, occupy and customise their digital space (Ackermann, 2013). Therefore, the *thirdspace* in children's digital play is shaped by each child's own negotiated perception of physical and digital symbols and contexts that compose the whole of the play experience.

Another noteworthy theme related to digital space deals with *collective* and *individual imagining* when related to digital experiences (Fleer, 2014, p. 82). This theme refers to shared properties of role-playing, i.e., when children play 'the floor is poisonous' (the Danish version of *Hot Lava*), meaning they have to jump from one place to another without touching the floor. This shared and agreed perception of playground rules is also present when a group of children play together on a digital device. The digital space sets the scene and the boundaries of the shared role-playing, and this space becomes the 'over there' while the device is being held close to the children's bodies.

Digital toys and digital play bring stimulating aspects when discussing digital literacy. These toys promote looking at children's play in order to inform current changes in the digital literacy scenario, informing how playing with digital toys might challenge current perceptions of digital literacy. In the following section, I present recent studies that address the field of play and digital literacy combined in order to further debate some of the valuable aspects of these fields in relation to my research.

3.4.   Digital Literacies and Play

Play and digital literacies have *played* together before. One example comes from scholars in the field of computer science and game studies (Abrams & Gerber, 2014; Gee, 2003; Papert, 1993b; Papert & Harel, 1991; Salen & Zimmerman, 2005; Zagal, 2010) who have long advocated playing to learn. Games and literacy in particular have gained a shared amount of research focus in recent years (Gee, 2003; Ito et al., 2013; Salen & Zimmerman, 2005; Weber & Dixon, 2010). Some of the studies concerning games and literacy research have been put into practice, culminating in middle and high schools as well as summer camps that make use of game-based learning to educate children (Ejsing-Duun & Skovbjerg, 2015; Ito, n.d.; Levinsen et al., 2014; 'Quest to Learn (Q2L) − Middle School and High School', n. d.). Technology is then an integral part of the learning process in these educational cases[4]. Digital platforms do permeate the contemporary lives of young children − as shown in my research − and as such, inform a set of acquired skills related to interacting with digital interfaces. Consequently, although my research does not focus on pre-defined aspects of formal education system learning such as game-based learning cases, theories related to media literacy, multiliteracies and digital literacies described earlier are of relevance for my discussion, as they help identify and define some of the skills being acquired when children play with digital interfaces.

Some scholars from the educational field have suggested that play is a literacy (Medina & Wohlwen, 2014). Through my research, I was able to visualise and experience play as one way of engaging with technologies and I very much agree that there is playfulness involved in the use of the media. Play contains aspects related to literacy but it goes beyond that. Dyson and Genishi (2009) describe play as the moment 'where children discover ideas, experiences, and concepts and think about them and their consequences'. So play as a 'mode of being' actively participates in the learning process; however, literacy is just one of the aspects that may compose play, and consequently, I do not necessarily align with this earlier definition. Furthermore, I do not see play as something learned, instead, as earlier suggested in this chapter, if one understands play as a sense, play can be described as an enabler for learning.

Digital interfaces are built on a collection of visual elements. How (their size, shape, etc.) and where (background, foreground, corners, edges, central, etc.) these elements appear on screens and dictate how they are to be used. When playing with tablet interfaces, children decode and create associations for the icons and signs available, as well as engaging in notions of time and space on the devices. These experiences can be described as *polysemous*, as they are multifaceted interactions, where one icon suggests 'a response', but how the user acknowledges and

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[4]In the case of the Minecraft summer camp ('Minecraft,' n.d.), the Minecraft application has been the chosen tool for learning. A relevant aspect to be highlighted regarding Minecraft is that it is not necessarily a game, as you would not call LEGO bricks a game. Minecraft has been described as an interactive space where players have a digital canvas for creating worlds with pixels (Thompson, 2016).

interprets the icon will lead to distinct ways of interacting with both the application and the device. I propose that with very young children, such as those in my target group, digital literacies are acquired and developed through play. Through my observations, questions emerged concerning what characterises the semiotic domain of tablet play, and how children construct meaning from the apps' signs and symbols. As tablets become familiar, so do popular apps, and they help to contextualise the (game) play. So the more acquainted one becomes with a tablet's properties and semiotic domains, the easier the following interaction will be.

In addition to this familiar aspect that contextualises the play, the confluence of media, or the transmedia intertextuality (Kinder, 1993; Marsh, 2014; Marshall, 2002), populates children's play in contemporary society. Nowadays, children's lives have an online dimension, both directly and indirectly (Livingstone, 2014b) and it is no longer possible to distinguish between online and offline domains as they are intertwined in children's play (Marsh, 2014). When dealing with tablets, this transmedia intertextuality is of vital importance. Children's use and modes of play with tablets are simultaneously online-dependent and offline-possible, considering that downloads, updates and networked apps rely on being online. However, playing on the device with various apps or even some of its physical affordances, such as the reflection, can occur in offline mode. Marsh (2014) also points out how current modes of play and media use create a semiotic knowledge that influences how children understand and conceptualise their everyday lives. Medina and Wohlwen (2014) align with Marsh (2014), acknowledging play as embodied and collaborative literacies:

> Children's social imaginations in contemporary times are embedded in fluid but also disjointed and fragmented cultural practices with multimodal textual resources that are not static or tethered to one particular place yet carry attached histories and ideologies that become traces of multiple localities […] Reading, writing and cultural production happen at the intersection of participation in complex worlds and discourses that cannot be ignored when visualising literacy pedagogies that matter to/for children. (Medina and Wohlwen (2014), p. 5)

Complementing this description of how children's social imaginations are currently formed, Marsh (2014) has presented the notion of a 'narrativized semiotic system', based on studies investigating young children's participation in virtual worlds. These worlds are characterised as 3D environments where a child can become a member, where their avatars can play games, make and meet physical friends online (as in a social network), join events, etc[5]. This semiotic

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[5]Both of my own children had Club Penguin accounts when young and often met and played with their school and kindergarten (*børnehave*) friends online. Now, a similar behavious is observed with my son when he plays Fortnite.

system notion also helps delineate how children apprehend digital information and how it builds on social and cultural experiences. Marsh (2014) indicates that these digital and physical encounters with toys and artefacts that belong to both online and offline play inform a range of aspects in their play:

> Children move across these spaces in fluid ways and genres of offline play (such as socio-dramatic play, fantasy play and games with rules) can be discerned in their play in virtual worlds, just as themes and characters from virtual world play appear in offline play contexts. Second, these virtual spaces are part of the narrativized semiotic system that is embedded in children's use of media texts and children draw on their understandings and experiences with narratives across a range of media in their online play. (2014, p. 411)

These narrativised experiences that cross online and offline domains generate perceptions that are then intertwined in children's competences, digital or not, such as those related to the perceptions of digital spaces and the types of play allowed or constrained by digital characteristics (Marsh et al., 2016).

Digital characteristics frame the tablet as a toy with wide digital capabilities but with specific narratives, constraints and rules such as those encountered in digital games. It is then valid to make a parallel of the competences and modes of tablet play observed, linked to studies looking at videogames competences and literacy.

Game literacy has been described within game studies, but has focused primarily on videogames without necessarily engaging in the whole spectrum of play. Gee (2003) suggests that a videogame-literate individual is able to decode; understand the meanings in respect to a semiotic domain, and produce meanings in respect to a semiotic domain. Despite these structures emerging from game studies, they also agree with descriptions of digital literacy and digital literacies presented earlier in this chapter. I would like to revisit them and suggest that similar defining structures could be applied in relation to tablet play. It could therefore be argued that in order for a child to engage and master (digital) tablet play, the child should be able to:

- decode (or be able to interact with touch interfaces, physical and digital buttons);
- understand a tablet semiotic domain (iconography, narratives, modes); and
- apply or transfer the tablet semiotic domain into other contexts.

By comparing these competences with those listed in the definition of digital literacy suggested by Sefton-Green et al. (2016) — 'a social practice that involves reading, writing and multimodal meaning-making through the use of a range of digital technologies' — I suggest that in my target group, the activity might be a social one, while reading and writing the alphabets are not necessarily taking

place. However, 'meaning-making through the use' is a major aspect of the play, which also includes social and cultural dimensions. This meaning-making is what I describe as decoding, because it starts from the first contact with a digital device, from finding out how to physically interact with it, for identifying and becoming acquainted with the interface in order to interact with the tablet semiotic domain. This decoding phase is followed by understanding the domain and being able to learn distinct narratives that can be applied in digital or physical interactions and contexts.

This wide range of narratives experienced through tablet play with apps and their characters is also present in children's continuous exposure to digital technologies in their lives and through common social practices and objects that carry digital characterisations. Children's encounters with digital devices happen concomitantly with encounters with other objects carrying symbols and images from digital contexts, characters from apps such as physical toys or patterns on clothing, such as the ones carrying characters and objects from Club Penguin or Angry Birds. So when allowed to interact with digital interfaces, these interfaces are not foreign, instead carry 'recognised' images (symbols).

These encounters with known images − how children's recognition of symbols and media permeate their online and offline social practices − touch on the concept of hyper-intertextuality (Fox, 2001; Régard, 2015)[6]. Hyper-intertextuality is defined by how information and symbols flow in diffracting ways, regrouping and reshaping through different media formats, from cereal boxes to icons on screens. In each instance, a current narrative feeds from a previous encounter while at the same time feeding into the following encounter in whichever media the narrative may occur. In the case of young children's digital play practice, the decoding or meaning-making is hyper-intertextual, thus social and contextual. Hence, my alignment with Sefton-Green et al.'s definition of digital literacy as social practices, although in the case of play in this young target group, I suggest adjusting the definition to include *hyper-intertextual* 'social practices'. This also aligns with Merchant's (2015a) recent research with toddlers and tablets, where he acknowledges that 'working with mobile technology is part of a translocal assemblage in which ideas, practices and material resources from diverse sources coalesce as a space for meaning making'. (2015a, p. 18).

The popular belief that children are masters of interaction may well be due to the everyday and contextualised hyper-intertextual characteristic of tablet play, where children acquire information about the use and existing narratives from several outputs and social exchanges[7]. In reality, we might just be observing a natural exploration of a toy, which happens to be digital, but that has become

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[6]Although these authors discuss hyper-intertextuality in distinct contexts, such as pop media and historical texts, I feel their definitions can apply to children's digital play contexts.
[7]I believe children are masters of exploration, but as my empirical data showed, the interaction and the decoding are all learned and apprehended. I discuss this further in the discussion chapter.

familiar to the child from social practices and cultural exposure, and this recognition of context might promote the required engagement for digital exploration. Decoding and meaning-making are the pillars of tablet play and digital exploration. During play, children explore. During learning, children problem-solve. So how does (digital) play/exploration relate to problem-solving?

Problem-solving is described as innate to children (Thornton, 1995). Thornton points out that from a very early age, children are attracted to solving problems, as she exemplifies:

> [...] even babies in their cribs enjoy solving problems (how do you get a rattle to make a sound?), which shows just how fundamental the process of solving problems is to our human makeup – and to childhood. (Thornton, 1995, p. 2)

She adds to this perception by indicating that solving problems is an intrinsic part of childhood and learning. She points out that children enjoy solving problems and that:

> [...] problem-solving skills grow out of the ordinary process of understanding the world around us, of discovering and using information and of reacting to and interpreting the feedback provided by our activities. (Thornton, 1995, pp. 4–5)

Additionally, Dewey (1938) suggested that play helps children encounter problems to be solved. Some of these 'problems' involve decoding or meaning-making; thus, problem-solving is a natural characteristic of children's play, which possibly stands out even more during children's tablet play. From decoding the 'secret codes' of interaction related to movements, physical and digital buttons, avatars, icons, etc., children are faced with multiple problems to be solved (I prefer calling them puzzles as the word *problem* sometimes has a negative connotation, which is not justified here). I discuss these perceptions further, based on the empirical data, in the analysis and discussion chapters.

The following chapters address aspects related to the topics presented here in the light of the analysis of data collected. I should also mention that beyond these considerations, some other perspectives were raised as the research progressed. These further perspectives challenged and complemented many of the topics exposed in these sections, and I will return to these topics later in this book. I think it is pertinent to note that I do not intend to propose yet another digital literacy definition. Instead, by looking at young children's use of tablets through a multidisciplinary lens, I align with the definition of digital literacy proposed by Sefton-Green et al. (2016), while reserving the freedom to adapt it towards play practices supported by the empirical data collected.

3.5. A Note about Knowledge and Experience

As digital play happens aided by the use of hands for the most part, not acknowledging the role of hands in this interaction would cripple my analysis and the work I have put into my research. Therefore, it would not be fair to discuss play and literacies studies and not present, even if in a very condensed form, some thoughts on knowledge and experience that emerge from *actors'* exchanges or social practices (Latour, 2005). The reason for bringing these theories into this review of play and literacies literature is due to the breadth of the material contained in my data set, plus they very well intertwine with my proposed idea of play as one of our senses.

In order to address the experience relating to the hand, I am being quite selective and choosing to engage with only few of the scholars who have impacted on studies related to perception, experience and technologies. Despite coming from different disciplines, they intersect in some aspects of their discourse, that is, those referring to the knowledge acquisition phenomenon and the role of a range of 'actors' building the final experience.

First, from phenomenology, Merleau-Ponty (2002) suggested that habit was born within a specific environment and acquired through imitation, and its perceptions, developed by the feedback, are received from that environment. However, he did not necessarily consider habit in itself to be knowledge. Instead, he suggested, among other descriptions, the example of habit as 'knowledge in the hands' (2002, p. 144). Being able to execute something without necessarily being able to thoroughly describe or rationalise it. He exemplified this behaviour through typing on a typewriter, where the fingers knew the way, 'a knowledge bred through familiarity which does not give us a position in objective space' (Merleau-Ponty, 2002, p. 166). But what does this *knowledge* mean in relation to digital play and digital literacy? As young children acquaint themselves with digital devices, we could describe their learned dexterity and digital perceptions as *knowledge in their hands*, a type of *hand literacy* or, as I propose later in the analysis, digital penmanship.

From the field of anthropology and adding to the notion of *knowledge in the hands*, Ingold (1994, 2009, 2013) explores the knowledge embodied within the hands in his work debating studies of art and technologies. He points out that creations emerge and feed on the encounter between the medium and the practitioner, affording the knowledge in what he describes as the 'weaving'. In his words, some disciplines are characterised by 'thinking through making' (2013, p. xi). This idea agrees well with Schön's (1987), Dewey's (1916) and Brinkmann and Tanggaard's (2010) perception of learning through experience, together with the 'learning by doing' approach mentioned earlier in this chapter. As children play with and through digital devices, they engage in digital experiences and, I suggest, also learn with them. The digital artefact both introduces and shapes the interactions that occur and provides the material for the engagement. The digital, as the artefact, is manipulated; it shapes movements while also adapting to them. This intertwined digital and physical process condenses into one product, the user

(weaver) experience (Dourish, 2016; Ingold, 2009; Pink, Ardévol, & Lanzeni, 2016). However, these interactions also depend on a range of other *actors*, which should also be taken into consideration in order to assess the full body of the experience.

Consequently, the actor-network theory (ANT)[8] (Latour, 2005; Law, 1992), or as suggested the 'sociology of associations' (Latour, 2005, p. 9), which have emerged from the field of STS, is also relevant when discussing play and digital literacy. According to ANT, knowledge (or science):

> is a process of *heterogeneous engineering* in which bits and pieces from the social, the technical, the conceptual and the textual are fitted together, and so converted (or translated) into a set of equally heterogeneous scientific products. (Law, 1992, p. 381, original emphasis in italics)

Play undeniably occurs in the encounter of a number of *actors*, and all of them promote and shape the outcome of the event and the actual experience. In relation to ANT, play takes 'place in an ecology of things, people, and processes, all of which are related in multiple and varying ways through time' (Sicart, 2014, p. 114). This perception aligns very well with the approach of multiliteracies studies, and consequently, bridging them appears to be a natural route in my research process.

3.6.   Chapter Overview

In order to study and discuss play and digital literacy focused on young children and tablet play, it is impossible to disregard the interconnections present during these observed encounters. It is actually the acknowledgement of this complexity that led to a range of considerations during the analysis of the data that subsequently informed the outcome of my study. Also, in order to answer those initial questions regarding what literacy is within the field of play, what it means to be play-literate, and what being digital-literate in playing as a young child is nowadays, I find some concepts contribute more to my study than others.

Considering that the literature review was compiled after the data were collected, it is valuable to highlight some of the key points that shaped my research.

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[8]When presenting ANT, Law (1992) proposes that:

[…] 'knowledge' may be seen as a product or an effect of a network of heterogeneous materials. I put 'knowledge' in inverted commas because it always takes material forms. It comes as talk, or conference presentations. Or it appears in papers, pre-prints or patents. Or again, it appears in the form of skills embodied in scientists and technicians (Latour & Woolgar, 1979). 'Knowledge', then, is embodied in a variety of material forms. (Law, 1992)

Among the key aspects presented in this chapter, I would like to highlight those serving as further grounds for my analysis and discussion chapter that follows.

Due to the vast breadth of literature valuable to my study, I chose to acknowledge its multiplicity, however subsequently only engage further with some of the theories previously introduced. Current definitions of digital literacy already thoroughly cover the wide range of characteristics that shape literacies concepts; however, these concepts do not clearly address the adoption of emerging technologies by young children. Sefton-Green et al.'s (2016) recent definition deals with a similar target group and thus is the definition with which I am aligning my research. However, based on the observations made throughout the study and that are presented in the following chapter, a couple of questions I have raised during this process both agree with and complement Sefton-Green et al.'s current definition of digital literacy. For example, acknowledging the role of play as the mediator of the interaction raises a number of questions to be debated, such as the role of the experience and the physical interaction informing young children's digital literacy practices; the breadth of characteristics defining what is to be digital-literate as a young child; and which current aspects of digital literacy definitions are witnessed during young children's playful interactions with tablets.

These perspectives also engage with theories covering aspects of play, such as Sicart's (2014) and Barnett's (1990) definitions of play and playfulness. Beyond the playful definitions presented earlier in this chapter, I also explore the idea that 'Playfulness glues together an ecology of playthings, situations, behaviours, and people, extending play toward an attitude for being in the world' (Sicart, 2014, p. 25). Tablets and apps are currently part of the ecology of children's digital and play experiences. These experiences are the final product composed of a number of actors involved, aligning with the ANT approach. Therefore, it is vital for my research to assess and evaluate how aspects of play have been building and shaping children's digital literacy practices. The role of play in shaping young children's tablet experiences informs what kinds of competences are acquired and developed through the play, and how aspects of play help define and motivate children's interactions with these devices.

In the following chapters, I introduce the method chosen, which in itself presented a number of challenges. In order to cross-analyse the sets of data, I needed to identify a set of key categories in children−tablet play interactions, such as context and narratives, as well as acknowledge my research limitations.

Furthermore, the choice of using tablets in order to observe digital play and literacies causes in itself some debate, as the device's interface and descriptions fall into inaccurate perceptions of technology (such as *intuitive* interfaces and children knowing how to use these devices *intuitively*). Combined with that, as an object, it was not designed for children. Notwithstanding these contending aspects, following the analysis, I suggest some answers to the questions I have raised so far, and add a number of other inquiries to be pursued in potential future research.