YOUNG CHILDREN'S PLAY PRACTICES WITH DIGITAL TABLETS

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Playful Literacy

BY

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INVESTOR IN PEOPLE

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About the Author

Isabel Fróes is currently a Postdoc at the Copenhagen Business School, Denmark. She holds a Bachelor's degree in Psychology from PUC Rio and a Master's degree from ITP at New York University. Her research taps into the values and uses of newly developed technologies, investigating how they affect ways in which new concepts and activities are socially and culturally developed. Her PhD research combined her psychology and design background exploring how young children's play practices with digital devices foster novel ways of communication and learning.

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Preface

You are about to begin a journey that explores how young children defy and discover digital universes (tablets) through their *magic wands* (hands). Since my research interest involves interdisciplinary fields, it also involves challenges. The largest is that no matter how much I write, I feel there will always be more fields and angles to cover. However, I could not consider addressing a study in any other way, as my background is interdisciplinary. I have a Bachelor's degree in Psychology and a Master's degree in Interactive Telecommunications. My master's focused not only on learning technological skills, such as programming and electronics, but also on approaching technology reflectively and critically. We were encouraged to think of technology as a verb, as suggested by the head of our programme at the time, Ms Red Burns.

I remained on a learning path by working in different countries and organisations with a variety of foci (interaction and service design, teaching, programming, etc.), both within industry and academia. Consequently, during the three years of my PhD studies, my educational and professional background experience converged to form my topic of choice. At the same time, by applying an interdisciplinary lens to my process, I have had the wonderful opportunity to be able to work with fields that I find highly motivating, and that build on my personal experience of observing young children and their digital interactions. It was partly this experience that informed the *what* and *why* that fuelled this book.

Regarding reading this book, I would like you to approach it as a piece of music. I explore a repertoire of studies by eminent researchers; their notes and perspectives harmonise and contrast with my own soloist moments, which originated during my writing process. All *notes* lead back to the initial train of thought, however, adding vital layers to the final composition.

For my research, I travelled to Japan. It was an eye-opening experience that expanded my horizons and shook my convictions. Despite having studied Japanese earlier in my life and knowing aspects of Japanese culture through a variety of media, books, films, origami, etc., the opportunity to immerse myself in the culture, though only for three months, proved one of the most significant learning curves of my life. I entered Japan with one set of lenses and I came back with very different ones.

The experience I gained there proved highly valuable for my PhD research and consequently, this book. Not only from the perspective of the data collected, but also for prompting me to think of aspects that were not necessarily initially visible in digital practices. For example, the role of iconography and symbols in a culture that is then confronted with western designs. In other words, how would tablets look if their interfaces had been developed in Japan? Probably you would swipe vertically and browse right to left through pages. More tangible

differences included those related to broader use of Roman rather than Japanese characters in young children's everyday life.

Japan proved to be the most playful and efficient country I have ever encountered. I would therefore like this book to reflect an element of the same playfulness by bringing you a different set of perspectives when reading about this journey of mine. I hope it makes you curious about the connection between play and efficiency, how much one rests on the other, and, if there is such a relationship, how children's play practices and their *magic wands* can lead the way to uncover this mystery.

Disclaimer

The author had no affiliation whatsoever with any of the App production companies either before or after her research. A total of 60 apps in total were chosen and downloaded based on the age category, their descriptions and popularity ranking on the Android and Apple store (Google Play and App store). The types of apps varied from *puzzle*, *game*, *entertainment*, *educational* and *family* categories, which were highly rated (four to five stars) however with download rates lower than 500,000 downloads at the time of the download (February 2014 in Denmark).

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Acknowledgements

I very much feel my achievements have been reached and supported by the wonderful people around my life. As if possible I would like to thank each and every person who brought me here with a text of its own. In order of life appearance, I thank you by trying to use a few words or sentences to sum it up.

Adyr and Renato: Passion, emotion, dream and values. Both of you engaged with life having these words as your motto, I just followed them.

Andreas: Love, warmth, support, steadiness, calm. You believed in making a 4th of July a forever after. I am forever grateful for your belief.

Victoria and Arthur: Love, love, fun, challenges, giants. Through your eyes I am always learning – you bring wonders to my world.

My dear friends and family: Thank you all for giving me so much! You know who you are! You have been my safety net and my life would never be the same without you.

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The pupils, faculty, staff and parents of the three institutions where I carried out my observations: Thank you very, very much for your time, interest and collaboration. I would not have gotten here without your kindness and support.

The educational institutions with which I have been affiliated throughout the years: Thank you for giving me support, a space to think, learn and expand my knowledge with the bonus of meeting wonderful colleagues and mentors.

True learning is a life experience that happens through a powerful exchange between curious and engaged learners, so I would like to thank those students who were a part of mine.

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Chapter 1

Introduction

One hundred years ago, the Belle Époque had faded. During the *beautiful era*, which had started 30 years before, at the turn of the twentieth century, daily routines had been transformed by newly developed inventions and technologies. The industrial revolution, which occurred in the same period, paved the way for a number of inventions such as the telegraph, the telephone, automobiles, the first computing machine and even the first commercial airline. As automobiles affected city landscapes and geographies, telegraphs and phones allowed for instant communication never seen before. Time perceptions changed and social contexts shifted. Beyond these, the popularisation of two other mobile machines bringing the possibility of self-expression and customisation flourished in the streets in the form of clothes and letters: the sewing machine and the typewriter (Gleick, 2011).

Sewing machines inspired the creation of magazines featuring clothes with accompanying templates and patterns and created an entirely new market. Suddenly, there were sewing machine toys; children could now make dresses for their own dolls and create a vast range of objects from fabrics. By playing with smaller versions of the machine, children acquainted themselves with the modes and ways of the toy, which could later allow them to engage with the 'full-scale versions'. In order to sew well, one had to be acquainted with different types of materials and learn about measuring, fittings and cutting with scissors. So, parallel to the release of sewing machines, magazines and courses were launched teaching both the skills and also facilitating the learning through the use of templates and patterns, which could be used repeatedly. People also had to get to know these related products. There were contexts, an order and narratives all informing the process of creating a final product, whatever that may be. When sewing, the dressmaker would learn both the narratives and the machine, embodying the modes, speeds and quirkiness of the product-making. The child, while playing with the toy versions of the machine, sought to achieve the same while having fun.

The typewriter (also known as the calligraph) also shared some of the same learning processes as those associated with sewing machines. Typewriters allowed for the standardisation of professional writing, allowing anyone who was literate to engage in writing without needing to decode various handwritings. The calligraph allowed for uniform writing, for clear calligraphy[1]. There

[1]Calligraphy originates from Greek (*Kallos, Kalli* = good, beauty*; Graphein, Graphos* = write, person who writes)

were typing courses, and in order to type a document, the typist had to become familiar with the machine and acquire a sense of unity where the fingers knew where to go without conscious perception. Good typists are capable of acquiring a sense of unity with their typewriter, shaping the skill of typing into an embodied knowledge. And yes, there were also toy typewriters. The toy counterparts of these objects promoted the ideas of having fun and playing, while also engaging in learning skills associated with a tool.

In order to become a dressmaker and gain calligraphy skills, one had to engage in a type of penmanship, where the writing is equivalent to producing a neat result through acquiring the skill of engaging with the materials and the machines. Both machine-related skills required practice and training in order for the hand to produce a visually pleasing and clear product. There were several tools, and with each and every tool, the hand had to become *one with the tool* to deliver the desired outcome. Merleau-Ponty (2002), when discussing the phenomenon of habit as something that cannot be rationalised, exemplified a notion of an acquired skill through the act of typing on a typewriter as creating 'knowledge in the hands' (2002, p. 144).

This notion of penmanship continues to evolve, together with machines and their technologies. Looking back, I consider sewing machines as the equivalent of 3D printing from the turn of the twentieth century, and typewriters as *printers that print while you type*[2]. None have lost their charm, nor have they been forgotten. A century later, instead of calligraphs, we have digital tablets, which communicate, engage and can send commands to several outlets. Tablets work offline and online and have entered the twenty-first-century toy landscape. This device turned toy itself poses a number of possibilities – and questions.

In recent debates, discussion has focused on the positive and negative aspects of media use (Buckingham & Strandgaard Jensen, 2012). Tablets, as a nine-year-old technology, have joined this controversial field and have been the target of headlines in a number of newspaper and news sites in Denmark in recent years ('Guide: Sådan vænner du dit barn af med at spille iPad,' Thomsen, 2015a, 'Om iPadiskolen,' n.d., 'Spil på iPad kan bremse børns udvikling,' n.d., 'Tjek lige iPad'en,' Thomsen, 2015b)[3]. More recently, some research initiatives have emerged focusing on mapping when and how media and the Internet are used by families with young children, which includes tablets (Holloway, Green, & Livingstone, 2013; Ólafsson, Livingstone, & Haddon, 2013; Sefton-Green, Marsh, Erstad, & Flewitt, 2016).

[2]A Brazilian newspaper chronicle writer used this expression a few years ago to explain a typewriter to his young daughter. Unfortunately, I could not trace the article, but the writer was Luis Fernando Veríssimo for *O Globo* newspaper from Rio de Janeiro.

[3]'Guide: How to Get Your Child to Stop Playing on the iPad', 'About iPads in School', 'Playing on iPads Can Affect Children's Development', 'Just Check the iPad' (own translation of the article titles).

Thus far, scant attention has been given to tablets from a play perspective in order to map the types of activities that are taking place while young children engage with these devices. For example, whether playing with tablets promotes the development of several competences, such as learning a wide range of narratives and symbols or looking at the roles of the hands and how they shape and become an integrated part of digital play. From the angle of play and tablets, I set out on this study journey with the following scope: to assess digital literacies through young children's current play practices with tablets in two[4] distinct countries.

More specifically, during my research, I focused on studying how tablet play among 84 preschoolers helps redefine recent concepts of digital literacy practices (Sefton-Green et al., 2016) in Denmark and Japan. Members of the young generation in both countries understand and conceptualise the physical world based on a range of skills, including those learned through their interaction with technology. Play is culturally shaped (Fleer, 2014; Sicart, 2014), and in the age group of 4–6 years (hereafter referred to as young children), play is the main mode of engagement with tablets, thus my overarching lens. As contemporary digital devices carry almost identical visual interfaces, investigating how play practices are manifested across countries with distinct cultures sheds light on transnational aspects of children's engagement with media (Drotner & Livingstone, 2008; Jackie Marsh, 2010).

Play can be a tangible or an abstract experience, a mode of being (Sicart, 2014). It is witnessed as the visible interaction and participation when playing with objects and peers as well as in the make-believe and thinking that goes on in children's (and adults') minds, which is impossible to access visually. Play could be seen as the central element in the development of human culture, or 'how far culture itself bears the character of play' (Huizinga, 1949, preface, unnumbered page).

The role of play in children's interactions with and approaches to technology is undeniable and affords new digital literacies, as children play across media (Gilster, 1997; Lankshear & Knobel, 2008; Leu, Kinzer, Coiro, & Cammack, 2004; Spencer, 1986). Tablets, as an example of the current pervasive media, are the artefacts many children, parents and educators are turning to when investigating and debating young children's digital practices (Arita, Seo, & Aldriedge, 2014; Chaudron, 2015; Couse & Chen, 2010; Merchant, 2015b; Neumann, 2015).

In addition, if children are to use digital tablets or similar tools at school ('Tablet and e-Learning Initiatives around the World | Tablets for Schools,' n. d.), preschools should prepare their pupils for the expected future interactions to avoid a gap or a wide discrepancy between 'master' users and 'novice' users.

[4]I initially wished to study three countries. However, due to the extensive data and limited time to finish the thesis, I streamlined the process to include only two countries. These countries proved to be diverse yet sufficiently similar to set a base of valuable and valid data.

Just as young children learn to recognise letters and numbers and practise motor and dexterity skills, learning and practising tablet-related (or digital-related) skills should be as integrated as all the other skills. Throughout my observations, there was a perceptive degree of discrepancy among the children's use and knowledge of tablets. Tablets, like pencils, require practice. This discrepancy indicates a form of 'digital divide' (Buckingham, 2005; Chinn & Fairlie, 2006; Scardamalia, 2003). In this context, the 'digital divide' does not necessarily fit its earlier definition as the gap between the technology rich and technology poor. Instead, it can be reconceptualised and expanded to cover the gap between the 'technology enthusiastic' families and 'technology apprehensive' families, which does not necessarily match economic patterns in the context of the observed target groups. Even though the learning curve associated with tablets might be steep and happen in a short period of time, the ways families perceive technology may also affect how a child relates to and uses a digital object.

I chose a grounded theory approach (Charmaz, 2014) in order to avoid blurring my research with pre-formed perceptions regarding children and technology. In grounded theory, the study starts with the empirical data collection instead of with the formation of hypotheses. The coding and data analysis provide the initial material to be matched with existing theories. I find this method more in tune with the field of my research, as I wished to avoid setting out on an investigation with one set of perspectives. Instead, as the method suggests, I wanted the data to guide which perspective should be used when studying children and technologies. This choice, together with the richness of the data, led me to expand the theoretical scope, bringing together theories from diverse scholarly fields.

Consequently, following the Introduction, I contextualise my research focus in two chapters. The chapter 'Play, *Lege* and *Asobu*' presents cultural aspects from the countries where the research took place, and the chapter 'Play, Literacies and Experience' contextualises my research focus through existing literature. I also acknowledge that my background and previous experiences coloured my coding and analysis process that led to my theoretical choices.

To cover these grounds, this book is structured in the following order:

The Chapter 1 composes the introduction of this book and sets the scene for my research process. The second chapter covers contextual aspects of play together with descriptions of preschool institutions in Denmark and Japan. A short glossary of terms follows the contextual aspects to facilitate reading the following chapters. The third chapter presents and discusses the topics of play, literacies and experience to substantiate my discussion. The literature is distributed throughout all the chapters, where I repeatedly reverted to relevant theories in order to leverage my analysis and discussion. The fourth chapter introduces my methodological approach and my research design. I explain my choice of grounded theory and how my research process followed this approach. In addition, I use excerpts of data to illustrate how the empirical data were collected and coded. I also introduce a hand movement typology. The findings and final coding follow the examples framing the subsequent analysis and discussion. The fifth chapter presents my analysis and discussion intertwined with my proposed

tablet play taxonomy. I explain how I clustered the theoretical codes that emerged in my analytical process into five final categories. The analysis and discussion of my empirical data expose the thinking behind my process leading to my theoretical contribution. The sixth chapter draws on the analysis and discussion, where I summarise some of their aspects, shaping my theoretical contribution to the field of childhood and play studies.

The seventh and final chapter is my conclusion. Instead of restating what has been presented throughout the book, I conclude by offering an all-round perspective of my theoretical contribution intertwined with a short overview of the existing play practices in society and how children are setting the stage for our playful world.

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Chapter 2

Play, *Lege* and *Asobu*: How the Concept of Play Is Defined in Danish and Japanese Contexts

In this chapter, I explain the reason for carrying out the observations in two countries, Denmark and Japan. I then contextualise the terms used to described play in the Danish and Japanese languages and offer a brief context of childcare institutions in both countries. After these cultural perspectives, I propose a short glossary that aids the reader's progress through the chapters that follow.

2.1. Denmark and Japan

> If you are studying the generality of a finding across nations (the country as the context of the study), selecting countries so as to maximise diversity along the dimension in question should allow you to explore the scope or universality of a phenomenon. (Ólafsson et al., 2013, p. 22)

> […] There is an urgent need to map children's engagement with cultural texts, such as media texts, in a global context. (Marsh, 2010, p. 12)

These two quotes introduce valuable grounds for including two countries as the sources of data for my research: observing the generality of young children's play practices with current technologies, such as tablets, in distinct contexts. Mobile technologies, such as tablets and smartphones from brands such as Samsung and Apple, have become ubiquitous in several countries. However, are current play practices with digital devices defining similar norms despite diverse cultural contexts? Technologies such as tablets are 'always flavoured by the local as instantiated in routines, relationships and day-to-day operations, as well as by the beliefs, understandings and experiences of participants' (Merchant, 2015, p. 6). Although I agree with this perception by Merchant (2015) in this research, I am not seeking to map the differences between Danish and Japanese children; instead, I set out to determine what types of play practices become universalised through tablet media. Play is a mediator of the interaction between child and device. Moreover, mapping digital play in transnational contexts facilitates

thinking about future developments in both design and educational fields. I also wished to investigate whether there was a universal 'play vocabulary' when dealing with touch-sensitive devices, as they carry the same interfaces across cultures.

The first country was the base country of the research, Denmark. The second country had to be selected on the basis of several initial considerations. First, it should not be a country where the similarities between cultures were too obvious (with this criterion, several northern European countries were excluded). Second, the educational systems, mainly related to young childcare, should be equivalent to those encountered in Denmark (children do not learn to read or write until six or seven years of age), and this aspect helped me eliminate another set of countries, such as England and Spain. A third point concerned language access. It should be a country where I could interact with the children in their language. Both Japan and Brazil fulfilled these conditions; however, Brazil presented another variable, which is the wide social-economical differences between classes.

Although recent research regarding how Japanese and Danish students perceive and describe their expectations and relationship to school have emerged (Umino & Dammeyer, 2018), there is a gap in the literature regarding aspects of Danish and Japanese culture of playing. Japan, like Denmark, has a more stable and unified social-economic system, and, in that sense, is closer to Denmark though with a clear cultural distinction regarding language and play. In addition, Japanese culture is described as a technology-oriented culture (McGray, 2002, cited in Ito, Matsuda, & Okabe, 2006); therefore, it is valuable to assess how this orientation is lived and apprehended in this culture considering the pervasiveness of Western-designed gadgets, such as the iPad. Considering the early adoption of mobile phones (Ketai) and the I-mode in Japan, which is a system that in 1999 already offered many of the services attributed to current smartphones (Ito et al., 2006), Japanese culture has also embraced various forms of entertainment, including games, as a regular part of their culture (Kusahara, 2003). Playing or having fun is witnessed in Japanese daily life through a wide range of visible accounts and performances, from dress codes, icons and characters displayed on signs, traffic information and packaging, to a variety of toys carried on bags, and commuters playing on their phones (Ito, Okabe, & Tsuji, 2012). These *performances* compose some of the multimodal aspects of current communication practices pervasive in Japan and inform the cultural urban context of Japanese children (Yamada-Rice, 2013). Similarly, digital tablets offer multimodal ways of communicating and rich iconography.

In Denmark, as a Western country, various forms of play have been mostly linked to pastimes and children's activities for many years. In more recent years, play perception has shifted with both the videogame market, catering for late teenagers and young adults, and smartphones, with which a range of users of all ages can engage while on the go; furthermore, play and games have entered the educational system as a way to engage students and promote learning (Ejsing-Duun & Skovbjerg, 2015). Besides this, computers and related technologies have entered the Danish school system both towards information and